

## 5.9 Noise

The following section is based upon the Noise Technical Report for the Urban Core Specific Plan, prepared by RECON in March, 2005 (Appendix D).

### 5.9.1 Existing Conditions

#### 5.9.1.1 Existing Noise Standards

In the City of Chula Vista GPU, noise standards are expressed in terms of the community noise equivalent level (CNEL). The City's exterior noise level standard for noise-sensitive areas, which include residences, school play areas, and outdoor recreational areas, is 65 CNEL. The City's exterior noise standard for office buildings and professional areas is 70 CNEL, and 75 decibels for retail and wholesale commercial areas, restaurants, and movie theaters. Figure 5.9-1 provides the allowable noise levels by land use as identified in the GPU.

The GPU of the City of Chula Vista specifies that residential structures shall be designed to prevent the intrusion of exterior noises such that interior noise levels attributable to exterior sources do not exceed 45 CNEL in noise-sensitive interior rooms. This conforms to Title 24 of the California Administrative Code that requires that multi-family residences' interior noise levels, due to exterior sources, not exceed 45 dB CNEL.

The California Administrative Code further specifies that if the exterior noise level exceeds 60 dB CNEL, an acoustical analysis shall demonstrate that the design would achieve the prescribed interior noise standard. Structural attenuation of noise from the exterior to interior is found in standard construction practices to be 15 dB or higher if windows are closed. With little additional noise reduction design, a noise reduction of 20 dB can be achieved. Exterior levels of up to 65 dB can therefore be accommodated before double-paned windows and other acoustical upgrades may be needed to meet the 45 dB CNEL interior standard.

The City's Municipal Zoning Code, Chapter 19.68 (Noise Control Ordinance), regulates noise generated by on-site activities. This ordinance specifies maximum one-hour average sound level limits at the boundary of a property. These maximum one-hour sound level limits are the maximum noise levels allowed at any point on or beyond the property boundaries due to activities occurring on the property. Where two or more zones adjoin, the more restrictive noise limits shall apply. Table 5.9-1 shows the exterior noise limits of the Noise Control Ordinance. These levels are applied to both environmental and nuisance noise sources as defined by the ordinance.

	Acceptable CNEL in Decibels					
Land Use	50	55	60	65	70	75
Residential						
Schools, Libraries, Daycare Facilities, Convalescent Homes, Outdoor Use Areas, and Other Similar Uses Considered Noise Sensitive						
Neighborhood Parks, Playgrounds						
Community Parks, Athletic Fields						
Office and Professional						
Places of Worship (excluding outdoor use areas)						
Retail and Wholesale Commercial, Restaurants, Movie Theaters						
Industrial, Manufacturing						

**FIGURE 5.9-1**  
Exterior Land Use-Noise  
Compatibility Guidelines

**TABLE 5.9-1  
EXTERIOR NOISE LIMITS**

Receiving Land Use Category	Noise Level [dB(A)]	
	10 P.M. to 7 A.M. (Weekdays)	7 A.M. to 10 P.M. (Weekdays)
	10 P.M. to 8 A.M. (Weekends)	8 A.M. to 10 P.M. (Weekends)
All residential (except multiple dwelling)	45	55
Multiple dwelling residential	50	60
Commercial	60	65
Light industry – I-R and I-L zone	70	70
Heavy industry – I zone	80	80

**NOTES:**Environmental Noise –  $L_{eq}$  in any hour.

Nuisance Noise – Not to be exceeded any time.

The noise level limits are specified for two different time intervals: daytime and nighttime hours. The daytime hours are specified as 7 A.M. to 10 P.M. on weekdays and 8 A.M. to 10 P.M. on weekends. The nighttime hours are specified as 10 P.M. to 7 A.M. on weekdays and 10 P.M. to 8 A.M. on weekends.

The City of Chula Vista Noise Control Ordinance restricts times of construction activities from 7:00 A.M. to 7:00 P.M., Monday through Saturday, and prohibits construction on Sundays and holidays. Furthermore, the noise levels from construction activities to residential receptors are not to exceed 75 dB, averaged over a 12-hour period.

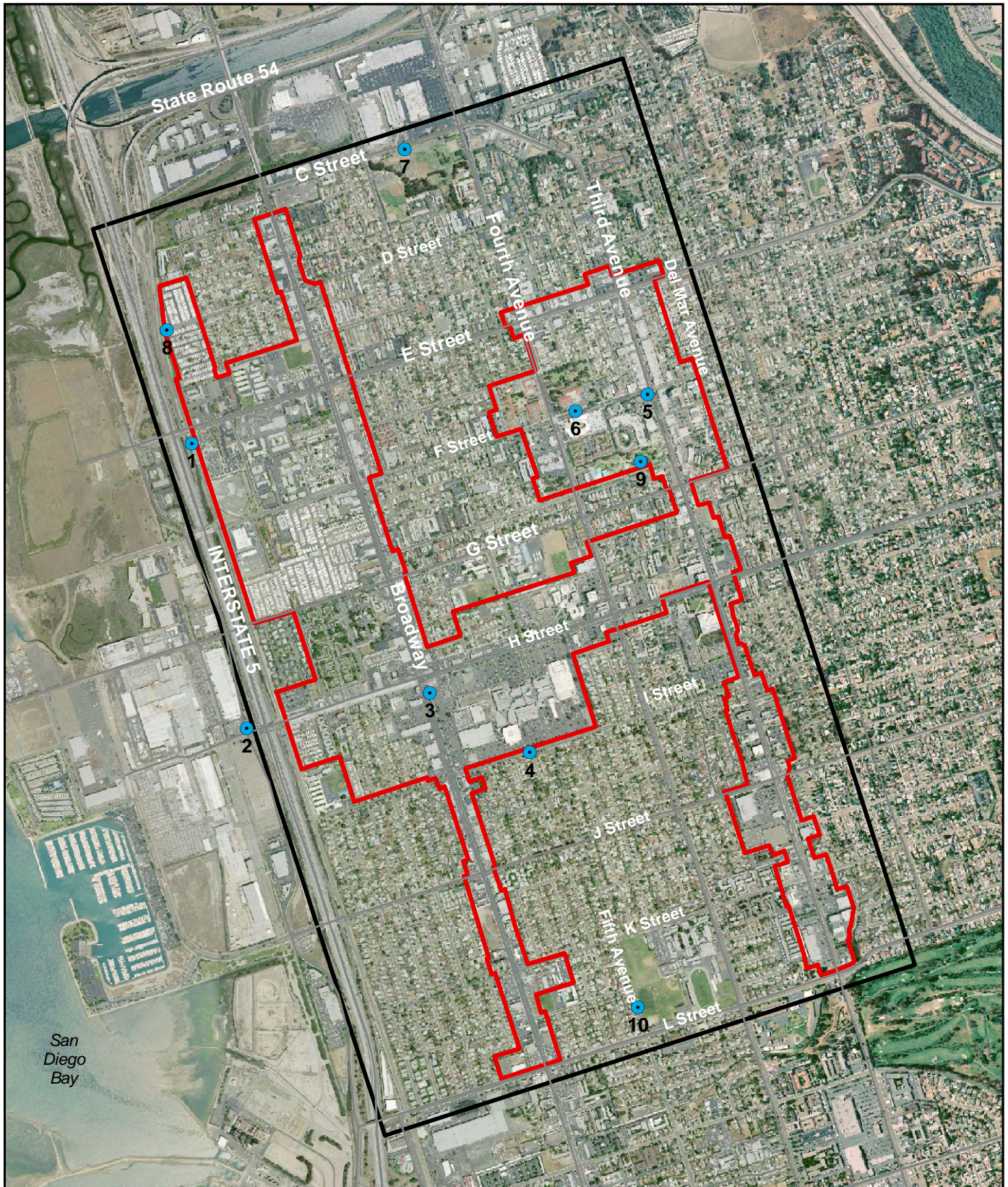
### 5.9.1.2 Existing Noise Levels

Residents and visitors to the UCSP area of Chula Vista are exposed to noise from traffic and other local noise sources. The following noise sources exist within the UCSP area:

- Traffic on circulation element roads;
- Traffic on Interstate 5;
- The San Diego Trolley operated by the Metropolitan Transit Development Board;
- Freight service provided by the San Diego & Imperial Valley Railroad; and
- Various commercial operations in the planning area.

Ambient noise conditions were measured in and around the planning area. In order to provide a qualitative assessment of the variability of noise throughout the study area, a series of 10 daytime noise measurements ranging from 15 to 18 minutes in duration were made throughout the study area. The measurement locations are shown in Figure 5.9-2 and were chosen to obtain existing noise levels in order to characterize the existing ambient noise condition. Table 5.9-2 presents the results of the ambient noise measurements. As





UCSP Study Area

UCSP Subdistricts Area

Short-term Measurement Locations

0 Feet 2,000 N

FIGURE 5.9-2  
Noise Measurement Locations



**TABLE 5.9-2  
EXISTING AMBIENT NOISE MEASUREMENT RESULTS**

Location	Date	Duration (Minutes)	Average Noise Level [dB(A)]	Traffic Noise Sources	Distance from Source	Noise Level at 50 feet from Source [dB(A)]
1	02/25/2005	15	66.4	Trolley	19 feet from center of near trolley tracks	58.0
2	02/25/2005	15	67.2	Bay Boulevard	50 feet from centerline	67.2
3	02/25/2005	15	71.2	Broadway Avenue	50 feet from centerline	71.2
4	02/25/2005	15	66.0	I Street	50 feet from centerline	66.0
5	02/25/2005	18	69.1	Corner of Third Avenue and F Street	50 feet from centerlines of both roadways	69.1
6	02/25/2005	17	63.5	F Street	50 feet from centerline	63.5
7	02/25/2005	18	66.7	C Street	50 feet from centerline	66.7
8	02/25/2005	15	72.6	I-5	N/A	N/A
9	02/25/2005	16	53.2	Third Avenue	N/A	N/A
10	02/25/2005	15	63.4	Fifth Avenue	40 feet from centerline	61.5

seen in the table, the measured short-term noise levels ranged from approximately 53 to 73 dB(A)  $L_{eq}$ , indicating that existing noise standards are currently being exceeded on some occasions.

In addition, existing noise conditions were modeled for receivers adjacent to circulation element roadways. Table 5.9-3 lists roadway segments within the UCSP area and their corresponding traffic volumes and modeled existing noise levels at a reference distance of 50 feet from the roadway centerline. Table 5.9-3 also includes distances from roadway centerlines to the 65 CNEL noise contour, the City's exterior noise threshold for noise-sensitive land uses such as residences, school play areas, and outdoor recreational areas. As indicated in Table 5.9-3, in some locations current distances to the 65 CNEL contour extend onto adjacent properties potentially occupied by noise-sensitive uses. The noise measurement and modeling data and descriptions are contained in the Noise Technical Report (see Appendix D).

## 5.9.2 Criteria for Determination of Significance

The GPU establishes standards for the assessment of potential adverse effects due to noise. Using these standards and the noise limits established by the City's Municipal Code, the proposed project would result in a significant noise impact if it would:

- Criterion 1: Result in exposure of receivers in the UCSP area to exterior noise levels that exceed the levels established by the GPU. These include limits of 65 CNEL in residential areas, 65 CNEL in outdoor use areas, neighborhood parks and playgrounds, 70 CNEL in community parks and athletic fields, 70 CNEL in office and professional areas, or 75 decibels for retail and wholesale commercial areas, restaurants, and movie theaters.
- Criterion 2: Result in interior noise levels that exceed 45 dB CNEL due to exterior sources for habitable rooms in residences; or
- Criterion 3: Result in noise levels that violate the City's Noise Ordinance (Chapter 19.68.010 of the Municipal Zoning Code).



**TABLE 5.9-3  
EXISTING TRAFFIC VOLUMES AND NOISE LEVELS**

Roadway	Segment	Traffic Volume	CNEL at 50 feet [dB(A)]	Speed Limit (mph)	Distance to 65 CNEL Contour (feet)
E Street	I-5 to Woodlawn Ave.	26,924	69	30	130
	Woodlawn Ave. to Broadway	21,997	68	30	106
	Fourth Ave. to Third Ave.	17,493	67	30	87
	East of First Ave.	17,966	67	30	87
F Street	I-5 to Woodlawn Ave.	5,336	62	30	26
	Woodlawn Ave. to Broadway	9,293	65	30	45
	Broadway to Fifth Ave.	7,880	64	30	38
	Fourth Ave. to Third Ave.	10,332	65	30	50
H Street	Woodlawn Ave. to Broadway	33,116	71	35	204
	Fifth Ave. to Fourth Ave.	24,637	70	35	152
	Second Ave. to First Ave.	27,474	70	35	170
J Street	Woodlawn Ave. to Broadway	19,024	69	35	117
L Street	Woodlawn Ave. to Broadway	15,450	68	35	95
	Second Ave. to First Ave.	16,430	68	35	101
Woodlawn Ave.	E St. to F St.	4,900	63	35	30
	G St. to H St.	2,600	60	35	16
Broadway	C St. to D St.	20,015	69	35	123
	F St. to G St.	23,208	70	35	143
	I St. to J St.	25,713	70	35	159
	K St. to L St.	26,599	70	35	164
Fourth Ave.	C St. to D St.	17,812	68	35	110
	F St. to G St.	17,001	68	35	105
	I St. to J St.	16,101	68	35	99
Third Ave.	D St. to E St.	7,200	64	35	44
	F St. to G St.	15,632	68	35	96
	I St. to J St.	23,459	70	35	145

SOURCE: Traffic volumes are from KHA (2006).

## 5.9.3 Impacts

### 5.9.3.1 Exterior Noise

- **Criterion 1: Result in exposure of receivers in the UCSP area to exterior noise levels that exceed the levels established by the GPU. These include limits of 65 CNEL in residential areas, 65 CNEL in outdoor use areas, neighborhood parks and playgrounds, 70 CNEL in community parks and athletic fields, 70 CNEL in office and professional areas, or 75 decibels for retail and wholesale commercial areas, restaurants, and movie theaters.**

Noise levels within the City of Chula Vista's UCSP generally are, and will continue to be, dominated by traffic-generated noise. Other noise sources in the area include the San Diego Trolley, freight service provided by the San Diego & Imperial Valley Railroad and commercial operations in the area.

In order to evaluate the potential for development in accordance with the UCSP to result in a significant impact in accordance with Criterion 1, noise levels were modeled for a series of receivers located throughout the project area to determine the future noise contours over the project site due to traffic on the roadways. The results of this monitoring are provided in Attachment 1 of the Noise Technical Report (see Appendix D).

Year 2030 traffic generated noise contours were estimated for the City's circulation element roadways using projected 2030 traffic volumes and the same traffic distributions, speeds, and mixes used for estimating the existing noise contours. Year 2030 traffic volumes were obtained from the traffic report prepared for this project (see Appendix C). Table 5.9-4 lists roadway segments and their corresponding year 2030 traffic volumes and noise levels at a reference distance of fifty feet from the centerline. Distances from roadway centerlines to the 65 CNEL noise contour, the City's exterior noise threshold for noise-sensitive land uses, are also provided in Table 5.9-4 (far right column). As indicated in the table, year 2030 distances to the 65 CNEL contour would extend, to varying distances depending upon location, onto adjacent properties potentially occupied by noise-sensitive uses.

Figure 5.9-3 presents the future noise contours relative to the circulation element roadways throughout the study area, which are based upon the conservative assumption of hard, flat site conditions.

These future noise contours assume a flat site and do not take into account any shielding provided by the proposed buildings, which is the worst-case scenario. As shown, ground-level receivers on lots adjacent to H Street, E Street, Broadway, and Third Avenue could experience future traffic noise levels in excess of 65 CNEL, which is the City's exterior residential standard. Without mitigation, noise impacts from traffic on area roads are considered significant.

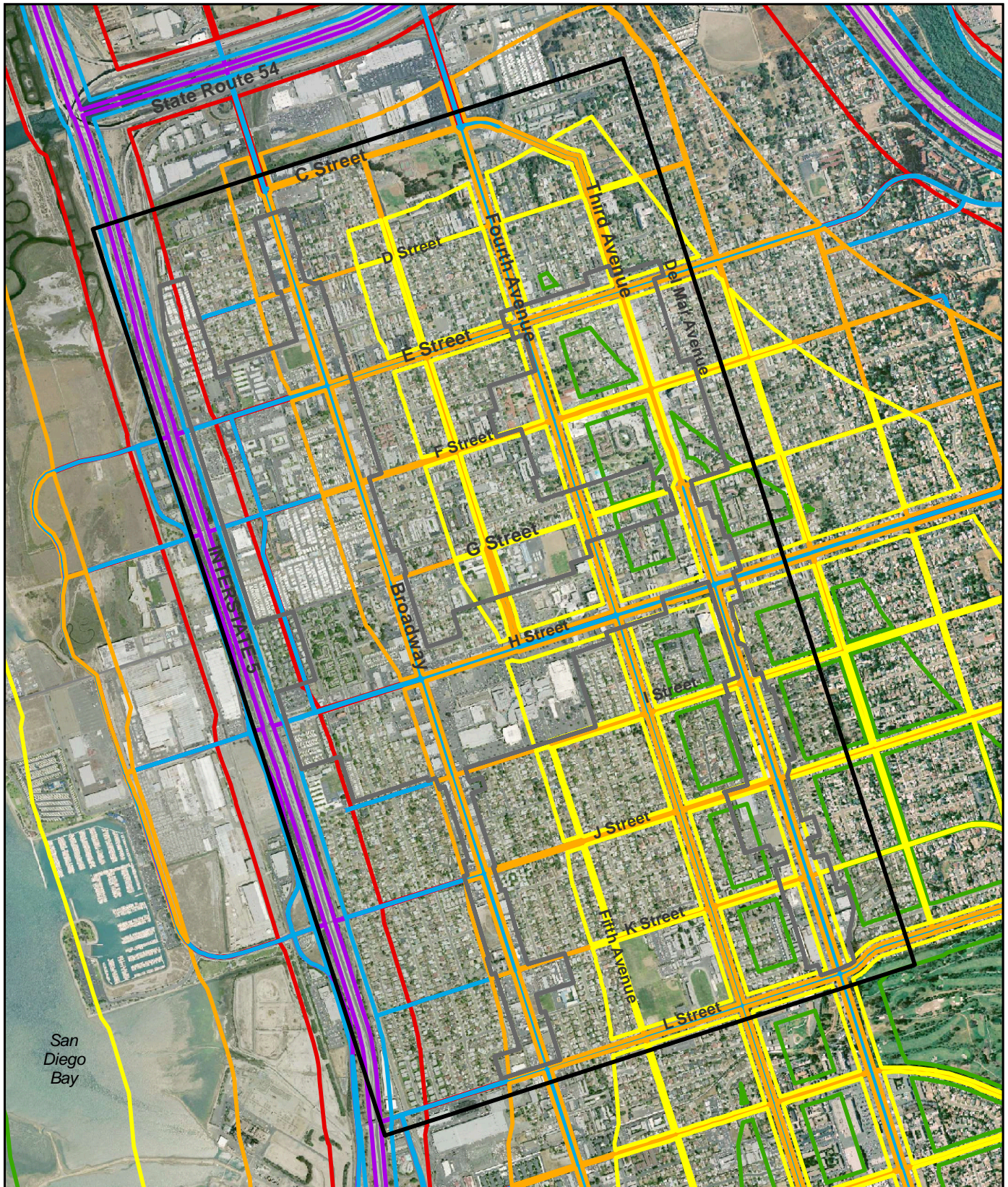




**TABLE 5.9-4  
2030 TRAFFIC VOLUMES AND NOISE LEVELS**

Roadway	Segment	Traffic Volume	CNEL at 50 feet [dB(A)]	Speed Limit (mph)	Distance to 65 CNEL Contour (feet)
E Street	I-5 to Woodlawn Ave.	32,000	70	30	155
	Woodlawn Ave. to Broadway	32,000	70	30	155
	Fourth Ave. to Third Ave.	21,000	68	30	102
	East of First Ave.	24,000	69	30	116
F Street	I-5 to Woodlawn Ave.	19,000	68	30	92
	Woodlawn Ave. to Broadway	18,000	67	30	87
	Broadway to Fifth Ave.	11,000	65	30	53
	Fourth Ave. to Third Ave.	13,000	66	30	53
	Second Ave. to First Ave.	6,000	63	30	29
H Street	Woodlawn Ave. to Broadway	52,000	73	35	321
	Fifth Ave. to Fourth Ave.	37,000	72	35	228
	Second Ave. to First Ave.	35,000	71	35	216
J Street	Woodlawn Ave. to Broadway	25,000	70	35	154
L Street	Woodlawn Ave. to Broadway	24,000	70	35	148
	Second Ave. to First Ave.	20,000	69	35	123
Woodlawn Ave.	E St. to F St.	12,000	67	35	74
	G St. to H St.	9,000	65	35	56
Broadway	C St. to D St.	28,000	70	35	173
	F St. to G St.	28,000	70	35	173
	I St. to J St.	29,000	71	35	179
	K St. to L St.	31,000	71	35	180
Fourth Ave.	C St. to D St.	23,000	70	35	142
	F St. to G St.	20,000	69	35	123
	I St. to J St.	18,000	68	35	111
Third Ave.	D St. to E St.	12,000	67	35	74
	F St. to G St.	21,000	69	35	123
	I St. to J St.	24,000	70	35	148



SOURCE: Traffic volumes are from KHA (2006).





-  UCSP Study Area
-  UCSP Subdistricts Area

Traffic Noise Contours (dBA)

-  85
-  80
-  75
-  70
-  65
-  60

0 Feet 2,000 N

FIGURE 5.9-3  
Year 2030 Traffic Noise Contours



In addition to noise resulting from traffic on area roads, noise will also result from rail traffic, both that produced by trolley activity and that resulting from trains. The primary railway operations in the plan area consist of trolley traffic. The current trolley schedule for the Blue Line indicates that there are 123 trolleys during the daytime hours, 20 trolleys during the evening hours, and 44 trolleys during the nighttime hours. It is likely that numbers of trolley trips will increase over the time frame represented by the development of the UCSP.

CNEL for trolley traffic is calculated by extending the noise level for an individual trolley event to all the trips occurring during the 24 hour period and weighting the noise that occurs in the evening and nighttime hours. For estimating the noise due to trolley operations, the Sound Exposure Level (SEL) for an individual trolley pass-by was applied to the weighted equivalent number of operations for a 24 hour period. The following formula provides the equivalent number of trolley operations for a 24-hour period:

$$N_{\text{total}} = N_{\text{day}} + 3*N_{\text{evening}} + 10*N_{\text{night}}$$

This results in a total of 623 equivalent trolley operations. Using the SEL measured at the Bayfront/E Street trolley station, the CNEL due to trolley operations was calculated using the following formula:

$$\text{CNEL} = \text{SEL} + 10*\text{Log}_{10}(N_{\text{total}}) - 49.4$$

Using an SEL of approximately 82 dB(A) that was calculated from the 15-minute measurement data at the Bayfront/E Street Trolley Station, the CNEL due to trolley operations is estimated to be approximately 70 CNEL at a distance of 50 feet. Again, the maximum observed noise levels during the trolley passbys ranged from 77 to 83 dB(A). Table 5.9-5 provides the unobstructed distance from the centerline between the trolley tracks to noise contours resulting from trolley operations.

**TABLE 5.9-5  
DISTANCE FROM CENTERLINE BETWEEN  
TROLLEY TRACKS TO UNOBSTRUCTED NOISE CONTOURS**

	CNEL			
	75	70	65	60
Distance	28 feet	51 feet	90 feet	160 feet

This represents a significant impact if residential uses are placed closer than 90 feet from the trolley line, or professional office or community parks are placed within 51 feet of the tracks. It should also be noted that there is an occasional freight train that uses this alignment. Maximum noise levels of up to 112 dB(A) were observed for the assumed freight operations (RECON 2004). As with the trolley passbys, maximum noise levels due to the freight operations are of relatively short duration (typically less than 30 seconds).

As a result of the analysis conducted for the UCSP, it was determined that noise levels could exceed the standard established by the GPU for areas immediately adjacent to circulation element roadways (at distances recorded in Table 5.9-4), freeways, and train and trolley lines (at distances recorded in Table 5.9-5). Development pursuant to the UCSP would result in exposure of receivers in the UCSP area to exterior noise levels that exceed 65 CNEL in residential areas, if planned exterior use areas are adjacent to those roadways (at distances recorded in Table 5.9-4), and are unshielded by buildings or other barriers. This comprises a significant exterior noise impact. At such time that projects are proposed, specific design review would be needed to assess compliance with the noise limits set by the GPU. These measures are outlined in the discussion of mitigation below.

Office and professional areas immediately adjacent to Interstate 5 would be exposed to noise levels in excess of 70 CNEL, or 75 decibels for retail and wholesale commercial areas, restaurants, and movie theaters. Therefore, impacts are significant.

### 5.9.3.2 Interior Noise

- **Criterion 2: Result in interior noise levels that exceed 45 dB CNEL due to exterior sources for habitable rooms in residences.**

The City of Chula Vista and the California Building Code set an interior noise standard for noise due to exterior sources for residential development. The California Building Code indicates that:

Residential structures to be located within an annual CNEL contour of 60 require an acoustical analysis showing that the structure has been designed to limit intruding noise to the prescribed allowable levels.

and that:

Interior community noise equivalent levels (CNEL) with the windows closed, attributable to exterior sources shall not exceed an annual CNEL of 45 dB in any habitable room.

While the Building Code exempts single family residences from this condition, all residential uses proposed as part of the UCSP would be multi-family and would be required to conform to this 45 dB CNEL standard.

Based on the analysis conducted for the specific plan, all residential uses immediately adjacent to circulation element roadways in the UCSP area would be exposed to exterior noise levels in excess of 60 dB CNEL therefore resulting in a significant impact. As such, the Building Code requires that these projects require an acoustical analysis showing that the structure has been designed to limit intruding noise.

The UCSP represents a significant impact to interior noise levels in accordance with Criterion 2 because exterior noise levels along major transportation facilities will exceed 60 CNEL, resulting in the potential for interior noise levels to exceed 45 CNEL.

### 5.9.3.3 City Noise Control Ordinance Violation

- **Criterion 3: Result in noise levels that violate the City's Noise Control Ordinance (Chapter 19.68.010 of the Municipal Zoning Code).**

In addition to placing receivers in adverse noise areas (per Criteria 1 and 2), there is the potential that the UCSP will allow uses that generate noise. Currently, specific uses at specific locations are unknown within the UCSP area. Much of the project area is considered mixed use, and as such, there is the potential that allowable commercial uses will occur in the same building as residential uses. These commercial uses could encompass noise producing activities, such as live music. To the extent that these activities are conducted within the allowable parameters of the municipal code, adverse noise impacts will not occur. Special provisions identified in Chapter VI of the UCSP indicate that mixed-use projects must comply with design objectives that include the minimization of the effects of any exterior noise, odors, glare, vehicular and pedestrian traffic, and other potentially significant impacts. In addition, they must provide for "internal compatibility between the different uses within the project" (UCSP, VI-44). Until specific uses are identified and "internal compatibility" has been determined, however, conformance to this requirement and to the code cannot be assured. Impacts associated with Criterion 3, therefore, are significant.

### 5.9.4 Summary of Significance Prior to Mitigation

Prior to mitigation, the UCSP would have a significant impact from noise for criteria 1, 2, and 3 because it would result in exposure of receivers in the UCSP area to exterior noise levels that exceed the levels established by the GPU and the City's noise control ordinance. As specified in Criterion 1, these include exterior limits of 65 CNEL in residential areas, outdoor use areas, neighborhood parks, and playgrounds, 70 CNEL in office and professional areas, or 75 decibels for retail and wholesale commercial areas, restaurants, and movie theaters. The adoption of the UCSP would also have a significant noise impact prior to mitigation because it would result in interior noise levels that exceed 45 dB CNEL due to exterior sources for habitable rooms in residences as assessed in Criterion 2. Until specific uses are identified, conformance to the City's noise control ordinance code cannot be assured and impacts associated with Criterion 3 are significant.

For Criterion 1, the siting of future parks has the potential to result in significant impacts. While park sites have not been designated, it is possible that parks could be sited next to circulation element roadways which generate noise in excess of 65 [to 70] decibels. This would be a significant impact and would require mitigation. Mitigating this impact would



require the construction of noise barriers. Required barrier heights may be achieved through the construction of walls, berms, or wall/berm combinations. While noise levels at a park site would be reduced by the construction of noise barriers, these barriers are incompatible with park uses.

## 5.9.5 Mitigation Measures

The following measures will mitigate noise impacts resulting from the adoption of the UCSP to below a level of significance.

### Mitigation Measure

5.9-1 Exterior Noise Mitigation Measure. Prior to the approval of individual development projects, projects within the UCSP area shall demonstrate that required outdoor usable open space areas are adequately shielded from transportation related noise sources so that noise levels fall below the standards set by the General Plan Update (see Figure 5.9-1 and Table 5.9-1). Noise reduction measures may include building noise-attenuating berms, walls or other attenuation measures. Future development of park facilities shall also, to the extent feasible, incorporate mitigation measures such as siting, berms, walls or other attenuation measures to reduce impacts to acceptable levels of 65-70 CNEL or less. Indication that noise levels fall below this limit shall be made to the satisfaction of the Planning and Building Director, Building Official or Community Development Director.

### Mitigation Measure

5.9-2 Interior Noise Mitigation Measure. Prior to the approval of subsequent individual development projects, for any residential use immediately adjacent to a circulation element roadway, trolley or rail line, or Interstate 5, an acoustical analysis shall be completed demonstrating to the satisfaction of the Planning and Building Director, Community Development Director or Building Official, that interior noise levels due to exterior sources are 45 CNEL or less in any habitable room. For residential projects where interior noise levels due to exterior noise sources exceed 45 CNEL, architectural and structural considerations such as improved window and door acoustical performance, shall be identified.

### Mitigation Measure

5.9-3 Interior Noise Mitigation Measure. Prior to the approval of individual development projects, projects where it is necessary for the windows to remain closed to ensure that interior noise levels meet the City's and the Building Code interior standard of 45 CNEL shall demonstrate that the design for these units includes a ventilation or air conditioning system which provides a habitable interior environment with the windows closed.

**Mitigation Measure**

- 5.9-4 Noise Mitigation Measure. Prior to the approval of individual development projects, commercial uses that may involve noise producing activities shall demonstrate compliance with the existing performance standards provided in the City's Noise Ordinance (Chapter 19.68.010 of the Municipal Zoning Code). Prior to project approval, subsequent projects shall also demonstrate compliance with the mixed-use provisions of Chapter VI of the UCSP that include minimization of the effects of any exterior noise impacts and provision of "internal compatibility between the different uses within the project" (UCSP, VI-44).

**5.9.6 Summary of Significance After Mitigation**

With the implementation of Noise Mitigation Measures 5.9-1 through 5.9-4, significant noise impacts resulting from the approval of the UCSP will be mitigated to less than significant for criteria 2 and 3. However, for criterion 1, because the only mitigation available to reduce exterior noise impacts to parks resulting from roadway traffic is the insertion of a barrier between the source (traffic) and receiver (park), and because parks are intended to remain open (i.e., not surrounded by walls) to the community, criterion 1 impacts cannot be mitigated. There are no feasible mitigation measures available to mitigate for the potential for parks that are to be sited next to circulation element roadways which generate noise in excess of 65-70 CNEL. Therefore, criterion 1 impacts remain significant and unmitigated.

## **5.10 Air Quality**

The following analysis of the potential air quality impacts which may result from implementation of the proposed UCSP is summarized from the Air Quality Report for the Urban Core Specific Plan, prepared by RECON in March 2006, which is appended to this EIR as Appendix E. In addition to the air quality assessment of construction and operation-related air pollutant emissions, this report contains a health risk assessment (Chapter 6.0) that considered the potential effects of placement of residential uses within 500 feet of Interstate 5. The Air Quality Report is available for review in its entirety at the City of Chula Vista Community Development Department at 276 Fourth Avenue, the Chula Vista Public Library Civic Center Branch at 365 F Street, and on the City's website at [www.ci.chula-vista.ca.us](http://www.ci.chula-vista.ca.us).

### **5.10.1 Existing Conditions**

#### **5.10.1.1 Meteorology/Climate**

The UCSP area is in the coastal plain physiographic province and experiences the semiarid steppe climate conditions typical of San Diego County coastal areas. This area is characterized by cool, dry summers and mild, wet winters. The area is strongly influenced by the subtropical high pressure of the north Pacific. In the fall and winter, this pressure system can shift inland sometimes centering over Nevada, resulting in winds from the east, referred to as Santa Anas. These winds tend to blow pollutants out over the ocean, producing clear days. However, at the onset or breakdown of these conditions, or if the Santa Ana is weak, air quality may be adversely affected. In these cases, emissions from the South Coast Air Basin to the north are blown out over the ocean, and low pressure over Baja California draws this pollutant-laden air mass southward. As the high pressure weakens, prevailing northwesterlies reassert themselves and send this cloud of contamination ashore in the San Diego Air Basin. When this impact does occur, the combination of transported and locally produced contaminants produces the worst air quality measurements recorded in the basin.

On-shore flow of air provides the driving mechanism for both air pollution transport and dispersion. The interior valleys of San Diego County also have numerous temperature inversions that control the vertical extent through which pollutants can be mixed. These inversions allow for good local mixing, but act like a giant cover over the larger area. A second inversion type forms when cool air drifts into lower valleys at night and pools on the valley floor. Because coastal areas experience fresh breezes during the daytime, areas like Chula Vista generally do not experience the same frequency of air pollution problems found in some areas east of San Diego. Unhealthful air quality may occur at times in summer during limited localized stagnation, but occurs mainly in conjunction with the occasional intrusion of polluted air from the Los Angeles Basin (South Coast Air Basin) into the County.



Except for the occasional interbasin transport, air quality in the project vicinity is expected to be good.

### **5.10.1.2 Air Quality Standards**

Ambient Air Quality Standards (AAQS) represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 U.S.C. 7506(c)] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the Clean Air Act, the EPA developed primary and secondary national ambient air quality standards (NAAQS). Six pollutants of primary concern were designated: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead and suspended particulates (PM<sub>10</sub>). The current state and federal ambient air quality standards are presented in Table 5.10-1. Table 5.10-2 presents a brief discussion of the principal sources of each criteria pollutant and the health effects associated with exposure to them.

While emission-control programs have created a substantial improvement in regional air quality within the last several decades, clean air standards are still often exceeded in parts of the San Diego Air Basin (SDAB). The nearest air quality measurements to the project site are made in downtown Chula Vista by the San Diego County Air Pollution Control District (APCD), the agency responsible for air quality planning, monitoring, and enforcement in the SDAB. A review of the last seven years of published monitoring data from the Chula Vista (80 East J Street) air quality monitoring station reveals that progress toward cleaner air is seen in almost every pollution category. Table 5.10-3 provides a summary of measurements of ozone (O<sub>3</sub>), carbon monoxide (CO), and 10-micron particulate matter (PM<sub>10</sub>) taken at the Chula Vista air quality monitoring station from 1999 through 2003. If an air basin is not in federal attainment for a particular pollutant, the basin is classified as marginal, moderate, serious, severe, or extreme (there is also a marginal classification for federal non-attainment areas).

The State Implementation Plan (SIP) is the document that sets forth the state's strategies for achieving the air quality standards. The San Diego Air Pollution Control District is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The San Diego APCD adopts rules, regulations, and programs to attain state and federal air quality standards, and appropriates money (including permit fees) to achieve these objectives.

In order to meet federal air quality standards in California, CARB required each air basin to develop its own strategy for achieving the NAAQS. The SDAPCD prepared the 1991/1992 Regional Air Quality Strategy (RAQS) in response to the requirements set forth in AB 2595. The draft was adopted, with amendments, on June 30, 1992 (County of San Diego 1992).

**TABLE 5.10-1  
AMBIENT AIR QUALITY SUMMARY – SAN DIEGO AIR BASIN**

Pollutant	Average Time	California Ambient Air Quality Standards <sup>a</sup>	Attainment Status	National Ambient Air Quality Standards <sup>b</sup>	Attainment Status	Maximum Concentration					Number of Days Exceeding State Standard					Number of Days Exceeding National Standard				
						1999	2000	2001	2002	2003	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
O <sub>3</sub>	1 hour	0.09 ppm	N	0.12 ppm	A	0.12	0.12	0.14	0.12	0.13	27	24	29	15	23	0	0	2	0	1
O <sub>3</sub>	8 hours	N/A	N/A	0.08 ppm	U	0.10	0.11	0.12	0.10	0.10	N/A	N/A	N/A	N/A	N/A	17	16	17	13	6
CO	1 hour	20 ppm	A	35 ppm	A	9.9	9.3	8.5	8.5	12.7	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
CO	8 hours	9.0 ppm	A	9 ppm	A	6.0	5.9	5.1	4.7	10.6	0	0	0	0	1	0	0	0	0	1
NO <sub>2</sub>	1 hour	0.25 ppm	A	N/A	N/A	.172	.117	.148	.126	.148	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
NO <sub>2</sub>	Annual	N/A	N/A	0.053 ppm	A	.026	.024	.022	.022	.021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SO <sub>2</sub>	1 hour	25 pphm	A	N/A	N/A	8.4	5.8	6.0	4.4	3.6	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
SO <sub>2</sub>	24 hours	4 pphm	A	14 pphm	A	1.7	1.4	1.6	1.2	1.1	0	0	0	0	0	0	0	0	0	0
SO <sub>2</sub>	Annual	N/A	N/A	3 pphm	A	0.3	0.4	0.4	0.4	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM <sub>10</sub>	24 hours	50 µg/m <sup>3</sup>	N	150 µg/m <sup>3</sup>	U	121	139	107	130	280	19	18	21	29	24	0	0	0	0	2
PM <sub>10</sub> <sup>c</sup>	Annual	20 µg/m <sup>3</sup>	N	50 µg/m <sup>3</sup>	A	52	45	49	55	52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM <sub>2.5</sub>	24 hours	N/A	N/A	65 µg/m <sup>3</sup>	U	64.3	66.3	60.0	53.6	239	N/A	N/A	N/A	N/A	N/A	0	1	0	0	2
PM <sub>2.5</sub> <sup>c</sup>	Annual	12 µg/m <sup>3</sup>	N/A	15 µg/m <sup>3</sup>	U	18.0	15.8	17.7	16.0	15.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SOURCES: SDAPCD and CARB 2002: <http://www.sdapcd.co.san-diego.ca.us> and <http://www.arb.ca.gov>.

<sup>a</sup>California standards for ozone, carbon monoxide (except at Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and PM<sub>10</sub> are values that are not to be exceeded. Some measurements gathered for pollutants with air quality standards that are based upon 1-hour, 8-hour, or 24-hour averages, may be excluded if the CARB determines they would occur less than once per year on average.

<sup>b</sup>National standards other than for ozone and particulates, and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one.

<sup>c</sup>On June 20, 2002, the Air Resources Board approved staff's recommendation to revise the PM<sub>10</sub> annual average standard to 20 µg/m<sup>3</sup> and to establish an annual average standard for PM<sub>2.5</sub> of 12 µg/m<sup>3</sup>. These standards will take effect upon final approval by the Office of Administrative Law, which is expected in May 2003. Information regarding these revisions can be found at <http://www.arb.ca.gov/research/aaqs/std-rs/std-rs.htm>.

<sup>d</sup>A-attainment, N-non-attainment, U-unclassifiable, N/A-not applicable or not available.

ppm-parts per million, pphm-parts per hundred million, µg/m<sup>3</sup>-micrograms per cubic meter.

**TABLE 5.10-2**  
**CRITERIA POLLUTANTS - SOURCES AND HEALTH EFFECTS**

Pollutant	Characteristics	Major Sources	Health Effects
Ozone (O <sub>3</sub> )	A highly reactive photochemical pollutant that is formed at ground level from emissions of volatile organic compounds (VOC) and nitrogen oxides (NO <sub>x</sub> ) in the presence of sunlight. Ozone is a major component of photochemical smog.	Combustion sources such as engines in automobiles and factories, and evaporation of solvents and fuels.	<ul style="list-style-type: none"> <li>• Eye irritation</li> <li>• Respiratory function impairment</li> </ul>
Carbon Monoxide (CO)	An odorless, colorless and poisonous gas. It is formed during the incomplete combustion of fuels.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.	<ul style="list-style-type: none"> <li>• Increase of carboxyhemoglobin - Impairment of oxygen transport in the bloodstream</li> <li>• Aggravation of cardiovascular disease</li> <li>• Impairment of central nervous system function</li> <li>• Fatigue, headache, confusion, dizziness</li> <li>• Can be fatal in the case of very high concentrations in enclosed places</li> </ul>
Sulfur Dioxide (SO <sub>2</sub> )	A colorless gas with a pungent, irritating odor.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.	<ul style="list-style-type: none"> <li>• Aggravation of chronic obstruction lung disease</li> <li>• Increased risk of acute and chronic respiratory disease</li> </ul>
Nitrogen Dioxide (NO <sub>2</sub> )	Reddish-brown gas that discolors the air. It is formed during combustion.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants	<ul style="list-style-type: none"> <li>• Increased risk of acute and chronic respiratory disease</li> </ul>
Particulate Matter (PM <sub>10</sub> & PM <sub>2.5</sub> )	Solid and liquid particles of dust, soot, aerosols, and other matter that are small enough to remain suspended in the air for a long period of time.	Combustion, automobiles, field burning, factories, and unpaved roads. Diesel engines for PM <sub>2.5</sub> . Also a result of photochemical processes.	<ul style="list-style-type: none"> <li>• Aggravation of respiratory effects like asthma and emphysema</li> <li>• May cause heart and lung problems</li> <li>• May carry toxic materials deep into the respiratory system</li> </ul>
Lead (Pb)	A toxic heavy metal found in dust and soils.	Lead gasoline additives, metal refineries, manufacture of lead storage batteries, paint	<ul style="list-style-type: none"> <li>• Brain and other nervous system damage</li> <li>• Carcinogenic</li> <li>• Digestive and other health problems</li> </ul>



**TABLE 5.10-3  
SUMMARY OF AIR QUALITY MEASUREMENTS RECORDED  
AT THE CHULA VISTA MONITORING STATION**

Pollutant/Standard	1999	2000	2001	2002	2003
<b>Ozone</b>					
Days State Standard Exceeded (0.09 ppm)	4	0	2	1	0
Days National Standard Exceeded (0.12 ppm)†	0	0	0	0	0
Max. 1-hr (ppm)	0.105	0.091	0.102	0.115	0.075
<b>Carbon Monoxide</b>					
Days State 1-hour Standard Exceeded (20 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (35 ppm)	0	0	0	0	0
Max. 1-hr (ppm)	5.4	5.8	5.6	4.3	6.9*
Max. 8-hr (ppm)	3.04	3.35	4.64	2.61	5.4*
Max. Summer 1-hr (ppm)	2.2	2.7	1.9	1.9	2.3
Max. Summer 8-hr (ppm)	1.6	1.943	1.314	1.45	1.5
<b>PM<sub>10</sub></b>					
Calculated Days State Standard Exceeded (µg/m <sup>3</sup> )**	N/A	N/A	12	6	12
Sampled Days State Standard Exceeded (µg/m <sup>3</sup> )	1	4	2	1	2
Days National Standard Exceeded (µg/m <sup>3</sup> )†	0	0	0	0	0
Max. Daily (µg/m <sup>3</sup> )	59.0	52.0	64.0	50.0	75.0
<b>PM<sub>2.5</sub></b>					
Sampled Days National Standard Exceeded (µg/m <sup>3</sup> )	0	0	0	0	1
Max. Daily (µg/m <sup>3</sup> )	47.1	40.5	41.0	41.0	239.2

SOURCE: CARB 2002: <http://www.arb.ca.gov>.

\*The measurement was taken on October 27, 2003 during the San Diego County forest fire and, therefore, is not an accurate representation of ambient conditions.

\*\*Calculated days - Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

†“National Standard” refers to the primary federal standard. In the case of ozone and PM<sub>10</sub>, the secondary federal standards are the same as the primary federal standards. There are no secondary federal standards for carbon monoxide.

Lead concentrations in the SDAB have not exceeded the state or federal standard during at least the past 10 years.

Attached, as part of the RAQS, are the transportation control measures (TCM) for the air quality plan prepared by the San Diego Association of Governments (SANDAG) in accordance with AB-2595 and adopted by SANDAG on March 27, 1992, as Resolution Number 92-49 and Addendum. The required triennial updates of the RAQS and corresponding TCM were adopted in 1995, 1998, and 2001. The RAQS and TCM plan set forth the steps needed to accomplish attainment of state and federal ambient air quality standards.

The San Diego APCD has also established a set of rules and regulations initially adopted on January 1, 1969, and periodically reviewed and updated. The rules and regulations define requirements regarding stationary sources of air pollutants and fugitive dust. These rules and regulations are available for review on the agency's website ([www.sdapcd.co.san-diego.ca.us](http://www.sdapcd.co.san-diego.ca.us)).

Local agencies can control neither the source nor the transportation of pollutants from outside the SDAB. The San Diego APCD's policy, therefore, has been to control local sources effectively enough to reduce locally produced contamination to clean air standards. Through the use of air pollution control measures outlined in the RAQS, the San Diego APCD has effectively reduced ozone levels in the SDAB.

#### **a. Ozone**

Ozone is the primary air pollution problem in the SDAB. Currently, about 60 percent of smog-forming emissions in the SDAB come from mobile sources. These mobile sources consist mainly of cars, trucks, and buses, but also include construction equipment, trains, and airplanes. Emission standards for mobile sources are established by state and federal agencies such as the California Air Resources Board (CARB) and the EPA.

Ozone pollution, or smog, is mainly a concern during the daytime in summer months because sunlight plays an important role in its formation. Nitrogen oxides and hydrocarbons (reactive organic gases) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. The SDAB is currently designated a state "serious" non-attainment area for ozone. Ozone concentration measurements recorded in the SDAB dating back to the late 1970s show a distinctive downward trend with occasional peaks due primarily to meteorological influences (County of San Diego 2001). More strict automobile emission controls including more efficient automobile engines have played a large role in why ozone levels have steadily decreased.

As indicated, not all of the ozone within the SDAB is derived from local sources. Under certain meteorological conditions, such as during Santa Ana wind events, ozone, and other pollutants are transported from the Los Angeles Basin and combine with ozone formed from local emission sources to produce elevated ozone levels in the SDAB. According to SANDAG, on average, approximately 42 percent of the days that have ozone

concentrations over state standard between 1987 and 1994 were attributable to pollution transported from Los Angeles (SANDAG 1994:249-250).

More recent data suggests that this percentage is even higher. According to the San Diego APCD, ozone transported into the SDAB from the South Coast Air Basin (Los Angeles area) was the primary cause for the SDAB exceeding national ozone thresholds on 27 of a total of 33 days from 1994 to 1998 (County of San Diego 2000). The San Diego APCD further explains that the two days in which the national one-hour standard was exceeded in the SDAB in 2001 (see Table 5.10-3) were both caused by ozone-rich air transported from the Los Angeles Basin (County of San Diego 2003).

In 1997, the EPA promulgated a new eight-hour ozone standard of 8 parts per hundred million (pphm) to replace the existing one-hour standard of 12 pphm. For areas in attainment of the one-hour standard, the eight-hour standard replaced the one-hour standard. However, the existing one-hour standard continued to apply in each non-attainment area until attainment of the one-hour standard was achieved. After attainment of the one-hour standard, the standard is revoked, leaving only the eight-hour standard (County of San Diego 1999).

On April 15, 2004 the EPA issued its final 8-hour designation. San Diego County is considered a non-attainment area for Ozone based on this standard. The San Diego APCD then has three years (2007) to formulate a strategy for reaching attainment of the eight-hour standard. The strategy must then be approved by the EPA. Based on the severity of the non-attainment status (i.e., marginal, moderate, serious, severe, or extreme), the attainment dates in which the APCD must demonstrate attainment of the standard range from 2007 to 2021.

Using the discretion provided by Section 172(a)(1) of the CAA, the EPA has chosen not to classify the basin (e.g., moderate, serious, etc.). For areas subject to Subpart 1, consistent with Section 172(a)(2)(A) of the CAA, the period of attainment will be no more than 5 years from the effective date of designation (EPA 2004b). Consequently, the SDAB must demonstrate attainment by June 14, 2009. If warranted, the EPA may grant an extension of the attainment date to no more than 10 years after designation (June 14, 2014).

Actions that have been taken in the SDAB to reduce ozone concentrations include:

- **TCMs if vehicle travel and emissions exceed attainment demonstration levels.** TCMs are strategies that will reduce transportation-related emissions by reducing vehicle use or improving traffic flow.
- **Enhanced motor vehicle inspection and maintenance program.** The smog check program monitors the amount of pollutants automobiles produce. One focus of the program is identifying “gross polluters” or vehicles that exceed two times the allowable emissions for a particular model. Regular maintenance and tune-ups, changing the oil,



and checking tire inflation can improve gas mileage and lower air pollutant emissions. It can also reduce traffic congestion due to preventable breakdowns, further lowering emissions.

- **Old car buy-back and retrofit programs.** The old car buy-back program is an incentive program offered by the San Diego APCD to purchase older, more polluting vehicles (1985 and older) and scrap them, thereby getting them off the road. Old car sellers are paid \$600 for vehicles built prior to 1975 and \$500 for 1975-1985 cars and trucks. There is also a retrofit program designed to retrofit 1975-1980 vehicles with a new technology upgrade kit that reduces smog-forming emissions.
- **Clean-fuel vehicle program.** Cleaner vehicles and fuels will result in continued reductions in vehicle pollutant emissions despite increases in travel.

### **b. Carbon Monoxide**

The SDAB is classified as a state and federal attainment area for carbon monoxide (CO) (County of San Diego 1998). No violations of the state standard for CO have been recorded in the SDAB since 1991 and no violations of the national standard have been recorded in the SDAB since 1989.

Small-scale, localized concentrations of carbon monoxide above the state and national standards have the potential to occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as “CO hot spots” and are a concern particularly during winter months when automobile engines burn fuel less efficiently and their exhaust contains more CO.

### **c. Particulates**

Particulate matter is a complex mixture of very tiny solid or liquid particles composed of chemicals, soot, and dust. Sources of PM<sub>10</sub> emissions in the SDAB consist mainly of urban activities, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. The national standards for PM<sub>10</sub> have never been exceeded in the SDAB since the standards were established. The EPA has designated the SDAB unclassifiable for PM<sub>10</sub>. The more strict state standards for PM<sub>10</sub> are currently not being met. As a result, the SDAB is designated a state non-attainment area for PM<sub>10</sub>.

Particles classified under the PM<sub>10</sub> category are mainly emitted directly from activities that disturb the soil including travel on roads and construction, mining, or agricultural operations. Other sources include windblown dust, salts, brake dust, and tire wear (County of San Diego 1998). For several reasons hinging on the area’s dry climate and coastal location, the SDAB has special difficulty in developing adequate tactics to meet present state particulate standards.

Airborne, inhalable particles with aerodynamic diameters of 2.5 microns or less ( $PM_{2.5}$ ) have recently been recognized as an air quality concern requiring regular monitoring. Federal regulations required that  $PM_{2.5}$  monitoring begin January 1, 1999 (County of San Diego 1999). Monitoring data is being collected in order to make a determination as to whether the  $PM_{2.5}$  standard is currently being met in the SDAB. Preliminary data from the first few years of  $PM_{2.5}$ -data collection indicates that the SDAB will be close to meeting the new  $PM_{2.5}$  standard.

A list of recommended designations was due to the EPA by February 15, 2004. The CARB supplied monitoring data for the years 2000 through 2002 to the EPA on February 11, 2004. The EPA reviewed the designation recommendations, made some modifications, and on January 5, 2005 listed the final designations in the Federal Register (EPA 2004c). These designations became effective April 5, 2005.

That portion of the SDAB containing the project site has been designated a non-attainment area for the  $PM_{2.5}$  standard (U.S. EPA 2004c). Attainment of the  $PM_{2.5}$  standards must be achieved five years after the designation date. Consequently, the SDAB must demonstrate attainment by April 5, 2010. If warranted, the EPA may grant an extension of the attainment date to no more than 10 years after designation (April 5, 2015).

#### **d. Other Pollutants**

The national and state standards for  $NO_2$ ,  $SO_2$ , and lead are being met in the SDAB and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future.

The San Diego APCD is the primary agency that handles industrial odor and dust complaints. As a part of their nuisance complaint program, the San Diego APCD responds to citizen complaints concerning air pollution problems, such as smoke odors, and dust from permitted and unpermitted operations. State and local regulations prohibit air pollution discharges which may cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or the public, or which cause or have the tendency to cause injury or damage to business or property. These regulations, which are referred to as the public nuisance laws, do not apply to odors from agricultural operations in the growing of crops, or raising of fowls or animals, or to composting facilities (County of San Diego 2001).

The City has included a Growth Management Element (GME) in its GPU. One of the stated objectives of the GME is to have active planning to meet federal and state air quality standards. This objective is incorporated into the GME's action program. In addition, the City's Growth Management Ordinance requires an Air Quality Improvement Plan (AQIP) be prepared for all major development projects (50 dwelling units or greater) as part of the SPA plan process.

The AQIP must provide an analysis of air pollution impacts resulting from the project, demonstrate the best available design to reduce emissions from the project, and address the action measures contained in the Chula Vista Carbon Dioxide Reduction Plan. In order to meet the AQIP requirements, developers can either participate in the Chula Vista Green Star Building Efficiency Program or evaluate the project using the Chula Vista CO<sub>2</sub> INDEX model, including any necessary site plan modifications.

### 5.10.2 Criteria for the Determination of Significance

Based on the thresholds identified in Appendix G of the CEQA guidelines, the proposed project would result in a significant impact to air quality if it would:

- Criterion 1: Conflict with or obstruct implementation of the applicable air quality plan;
- Criterion 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Criterion 3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). The City of Chula Vista uses the following South Coast Air Quality Management District (SCAQMD) thresholds to assess the significance of air quality impacts (SCAQMD 1993) (Table 5.10-4):

**TABLE 5.10-4  
SCAQMD THRESHOLDS**

Pollutant	Project Construction	Project Operation
Carbon Monoxide	24.75 tons/quarter	550 pounds/day
Reactive Organic Compounds	2.5 tons/quarter	55 pounds/day
Oxides of Nitrogen	2.5 tons/quarter	55 pounds/day
Oxides of Sulfur	6.75 tons/quarter	150 pounds/day
PM <sub>10</sub>	6.75 tons/quarter	150 pounds/day

- Criterion 4: Expose sensitive receptors to substantial pollutant concentrations such as ozone or respirable particulates (PM<sub>10</sub>);
- Criterion 5: Create objectionable odors affecting a substantial number of people.

### 5.10.3 Impacts

#### 5.10.3.1 Air Quality Plan

- **Criterion 1: Conflict with or obstruct implementation of the applicable Air Quality Plan.**

**a. SIP/RAQS**

As noted above, the SIP is the document that sets forth the state's strategies for achieving air quality standards. The San Diego APCD is the agency that regulates air quality in the SDAB and is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The RAQS and TCM plan developed by the San Diego APCD and SANDAG set forth the steps needed to accomplish attainment of state and federal ambient air quality standards. The San Diego APCD adopts rules, regulations, and programs to attain state and federal air quality standards, and appropriates money (including permit fees) to achieve these objectives.

In order to meet federal air quality standards in California, the CARB required each air district to develop its own strategy for achieving the NAAQS. The San Diego Air Pollution Control District prepared the 1991/1992 RAQS in response to the requirements set forth in AB 2595. Attached as part of the RAQS is the TCM plan prepared by SANDAG. The RAQS and TCM plan set forth the steps needed to accomplish attainment of state and federal ambient air quality standards.

The basis for these plans is the distribution of population in the region as projected by SANDAG. Growth forecasting is based in part on the land uses established by the General Plan. The current RAQS are based on the General Plan that was in effect when the RAQS were adopted in 1992 and updated through 2001, and not the recently adopted GPU (December 2005). Therefore, the proposed land uses under the adopted GPU and proposed UCSP are not consistent with the RAQS.

The UCSP includes measures to lessen air quality impacts. The UCSP has been prepared using the smart growth principles foundational to the GPU such as providing a mix of compatible land uses; locating highest density near transit, utilizing compact building design and creating walkable communities; providing a range of infill housing opportunities; and increasing travel choices. In particular, the UCSP focuses new development at key transit nodes and enhances alternative modes of travel by promoting walkability with enhanced pedestrian paths, augmenting existing bicycle paths, and making public transit more accessible and desirable with new and expanded public transit stops.

However, because the land uses proposed in the UCSP (and GPU) are inconsistent with the former General Plan (1989) upon which the RAQS was based, the GPU and UCSP would not conform to the current RAQS. If a project is inconsistent with the City's former General Plan (1989), it cannot be considered consistent with the growth assumptions in the RAQS. The RAQS are updated every three years, and will be updated again in 2007. Consequently, the proposed UCSP would conflict with the adopted air plan. This is a significant impact.

**b. AQIP**

As described above, the City's Growth Management Ordinance requires preparation of an Air Quality Improvement Plan (AQIP) for all major development projects (50 dwelling units or greater) as part of the SPA plan process. In order to meet the AQIP requirements, subsequent project developers can either participate in the Chula Vista Green Star Building Efficiency Program or evaluate the project using the Chula Vista CO<sub>2</sub> INDEX model, including any necessary site plan modifications. The proposed UCSP would not obstruct implementation of an AQIP.

**5.10.3.2 Air Quality Standards**

- **Criterion 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

There are no existing or projected air quality violations in the UCSP area. Furthermore, there are no toxic air emitters proposed as part of the UCSP. As such, the proposed project will not contribute to an existing or projected air quality violation.

All proposed land uses are either multi-family residential, commercial, retail or public uses, and no industrial uses are proposed. The results of the criteria air pollutant emissions modeling conducted for the Air Quality Report, which included both mobile and area source emissions projections, indicate that emissions resulting from buildout of the UCSP are anticipated to be below those that would occur under existing conditions due to improvements in mobile source emissions (refer to Table 5.10-7 in Section 5.10.3.3 below). Thus, operation of the UCSP is not anticipated to have a significant air quality impact when compared to the existing condition.

Furthermore, the GPU of the City of Chula Vista includes Policy EE 6.4 that prohibits major toxic air emitters within 1,000 feet of a sensitive receiver unless a health risk assessment has been performed demonstrating an incremental cancer risk of less than 10 in 1,000,000 and a chronic and acute total health hazard index (THI) of less than 1.

**5.10.3.3 Cumulative Net Increase in Criteria Pollutants**

- **Criterion 3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State Ambient Air Quality Standard.**

The region is in attainment for all criteria pollutants except ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> (see Table 5.10-1). The SDAB is non-attainment for the 8-hour federal ozone standard. Because ozone is not emitted directly but forms in the atmosphere, it is more a regional concern than it is a direct effect of individual projects. As noted above, ozone pollution, or smog, is mainly a concern during the daytime in summer months because sunlight plays an

important role in its formation. Nitrogen oxides and hydrocarbons (reactive organic gases) are known as the chief “precursors” of ozone. These compounds react in the presence of sunlight to produce ozone. For PM<sub>10</sub>, the region has a federal designation of Unclassifiable and is non-attainment of the State standard, while the region is designated non-attainment for state PM<sub>2.5</sub> standards.

The proportional increase in multi-family units to single-family units and resulting decrease in number of vehicle trips per unit and the anticipated improvement in motor vehicle emissions result in an expected decrease in pollutants over existing conditions for all pollutants except SO<sub>2</sub> and PM<sub>10</sub> (refer to Table 5.7 below.) Since the region is not in compliance with the PM<sub>10</sub> standard, and because the average daily emission is anticipated to increase, impacts are considered significant, until the region is in compliance.

Potential cumulative increases in any criteria pollutant for which the SDAB is not in attainment has the potential to result from long-term emissions of air pollutants generated by both stationary and mobile sources within the UCSP area. Stationary source pollutant emissions include those generated by the consumption of natural gas and electricity for space and water heating and the burning of wood in residential fireplaces. Vehicle travel would generate mobile source emissions including carbon monoxide, nitrogen oxides, and hydrocarbons. Construction of projects that conform to the UCSP would also potentially contribute to cumulative air quality impacts. Analysis of construction and operation-related air quality impacts are discussed below.

#### **a. Construction**

Air pollutants generated by the construction of projects that conform to the proposed UCSP would vary depending upon the number of projects occurring simultaneously, and the size of each individual project. Pollutants result from dust raised during demolition and grading, emissions from construction vehicles, chemicals used during construction, and ultimately emissions generated during operation of approved uses.

Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust. Construction operations are subject to the requirements established in Regulation 4, Rules 52 and 54, of the San Diego APCD's rules and regulations.

The exact number and timing of all development projects that could occur under the proposed UCSP are unknown. However, given the predominantly developed nature of the urban core area, it can be assumed that the UCSP Subdistricts Area would experience relatively small projects in terms of land area, most of which would involve the demolition of existing structures and improvements.



To illustrate the potential air quality effects from projects that could occur in the UCSP Subdistricts Area, a speculative project was evaluated. This hypothetical project includes a one-acre multi-family residential project that may be typical in the Urban Core. The one-acre multi-family development is assumed to consist of the demolition of an existing structure with a volume of approximately 50,000 cubic feet and the construction of a 40-unit multi-family structure. Construction emissions were calculated using the using the URBEMIS2002 computer program (Yolo-Solano Air Quality Management District 2003).

Table 5.10-5 shows the anticipated emissions from each 40-unit multi-family project assuming that the duration of construction is 12 months.

**TABLE 5.10-5  
YEARLY CONSTRUCTION EMISSIONS  
(tons/year)**

Pollutant	Small Multi-Family Project
ROG	1.66
NO <sub>x</sub>	6.03
CO	5.73
SO <sub>2</sub>	0
PM <sub>10</sub> – total	0.3
PM <sub>10</sub> – exhaust	0.24
PM <sub>10</sub> – fugitive dust	0.06

To estimate the effects of such projects over the 25-year horizon of the UCSP it was assumed that an average of approximately five projects equivalent to the 40-unit multi-family project could occur yearly.

The City of Chula Vista uses the South Coast Air Quality Management District (SCAQMD) quarterly construction thresholds shown in Table 5.10-6 to assess the significance of air quality impacts. Table 5.10-6 shows the average quarterly emissions using the above assumptions.

**TABLE 5.10-6  
AVERAGE QUARTERLY EMISSIONS  
(tons/quarter)**

Pollutant	Small Multi-Family Project	Five Small Multi-Family Projects	Threshold†
ROG	0.42	2.05	2.5
NO <sub>x</sub>	1.5	7.5	2.5
CO	1.43	7.15	24.75
SO <sub>2</sub>	0	0	6.75
PM <sub>10</sub> – total	0.08	0.4	6.75
PM <sub>10</sub> – exhaust	0.06	0.3	--
PM <sub>10</sub> – fugitive dust	0.02	0.1	--

†Threshold for individual projects.

As seen from Table 5.10-6, small individual projects are not expected to exceed the thresholds of significance. If the smaller projects were considered as a single project they might exceed the quarterly thresholds.

The SDAB is not in attainment for Ozone and  $PM_{10}$ . There is the potential for future projects that would conform to the UCSP to contribute to cumulatively considerable construction-related emissions should multiple projects be implemented simultaneously. Should five projects equivalent to 200 dwelling units per acre be initiated in any given year, it is anticipated that the construction of those projects would result in a potentially cumulatively considerable short-term increase in criteria air pollutant emissions.

### **b. Operation**

For comparative purposes, an assessment of the anticipated air emissions resulting from buildout of the proposed UCSP in the year 2030 was prepared using the URBEMIS2002 computer program (Yolo-Solano Air Quality Management District 2003). The URBEMIS2002 program is a tool used to estimate air emissions resulting from land development projects in the State of California. The model generates emissions from three basic sources: construction sources, area sources (e.g., fireplaces, natural gas heating, etc.), and operational sources (e.g., traffic).

Inputs to URBEMIS2002 include such parameters as the air basin containing the project, land uses, trip generation rates, trip lengths, vehicle fleet mix (i.e., percentage autos, medium truck, etc.), trip distribution (i.e., percent home to work, etc.), season, and ambient temperature, as well as other parameters. A detailed description of the URBEMIS2002 model and its use may be found in the URBEMIS2002 User's Guide that may be obtained from the CARB web site at <http://www.arb.ca.gov/planning/urbemis/urbemis2002/urbemis2002.htm>.

Using the land use designations for the UCSP, along with trip generation rates provided by Kimley-Horn, as well as URBEMIS2002 defaults for other parameters, average daily emissions were estimated using URBEMIS2002 assuming buildout of the UCSP in the year 2030. The results of the modeling, which include both mobile and area source emissions, are shown in Table 5.10-7. As seen in Table 5.10-7, emissions are anticipated to be below those that would occur under existing conditions due to improvements in mobile source emissions. As such, operation of the UCSP is not anticipated to have a significant air quality impact when compared to the existing condition.

### **5.10.3.4 Sensitive Receptors**

- **Criterion 4: Expose sensitive receptors to substantial pollutant concentrations such as ozone or respirable particulates ( $PM_{10}$ ).**

**TABLE 5.10-7**  
**AVERAGE DAILY EMISSIONS TO THE SAN DIEGO AIR BASIN**  
**RESULTING FROM BUILDOUT OF THE UCSP**  
**(pounds per day)**

Season/Pollutant	Existing Condition (2005)			Urban Core Specific Plan (2030)			Change		
	Mobile Sources	Area Sources	Total <sup>1</sup>	Mobile Sources	Area Sources	Total <sup>1</sup>	Mobile Sources	Area Sources	Total <sup>1</sup>
<b>Summer</b>									
CO	23,116	34.9	23,151.2	5,796	64.08	5,860.2	-17,320	+29.2	-17,291
NOx	2,353	82.8	2,435.6	503.6	151.6	655.2	-1,849	+68.8	-1,780
ROG	1,771	252.7	2,023.6	512.5	537.1	1,049.7	-1,259	+284.4	-973.9
SO <sub>x</sub> <sup>2</sup>	20.50	0.00	20.50	16.87	0.00	16.9	-3.6	0.0	-3.6
PM <sub>10</sub>	2,007	0.15	2,006.7	2,949	0.28	2,949.6	+942	+0.13	+942.9
<b>Winter</b>									
CO	25,746	34.07	25,779.7	5,968	62.7	6,030.6	-19,778	+28.6	-19,749
NOx	3,573	82.8	3,655.9	754.6	151.6	906.2	-2,818	+68.8	-2,750
ROG	2,098	252.6	2,350.8	531.9	537.0	1,068.9	-1,566	+284.4	-1,282
SO <sub>x</sub> <sup>2</sup>	20.39	0.00	20.39	16.55	0.00	16.6	-3.8	0.0	-3.8
PM <sub>10</sub>	2,007	0.15	2,006.7	2,949	0.28	2,949.6	+942	+0.13	+942.9

<sup>1</sup>Totals may differ due to rounding.

<sup>2</sup>Emissions calculated by URBEMIS2002 are for SO<sub>2</sub>.

Although there are no major toxic air emitters within the UCSP area, there is one energy generation facility in the vicinity of the UCSP area, and one other potentially significant source of air pollution. The South Bay Power Plant is located in the Bayfront Planning District, west of the freeway, approximately 4,800 feet southwest of the intersection of Interstate 5 and H Street on the east edge of the Subdistricts Area. The Goodrich industrial facility is located about 1,000 feet due west of this intersection. These HRAs are hereby incorporated by reference pursuant to CEQA Guidelines Section 15150 and are available for review in their entirety at the City of Chula Vista Planning Department at 276 Fourth Avenue and the Chula Vista Public Library Civic Center Branch at 365 F Street.

While both facilities are further than 1,000 feet from the proposed project, each has had a health risk assessment prepared previously. Both of these assessments have demonstrated that the incremental cancer risk in the specific plan area from these facilities is below 10 in 1,000,000 and thus do not comprise a significant health risk to the UCSP area.

Evaluation of Criterion 4 also involved the completion of a health risk assessment (HRA) for the effects of diesel particulates emitted from traffic on Interstate 5 as well as CO hot spot modeling for select intersections. The results of the health risk assessment as it pertains to Criterion 4 are provided in the section on the HRA below. The following discussion presents the result of the hot spot modeling for select intersections.

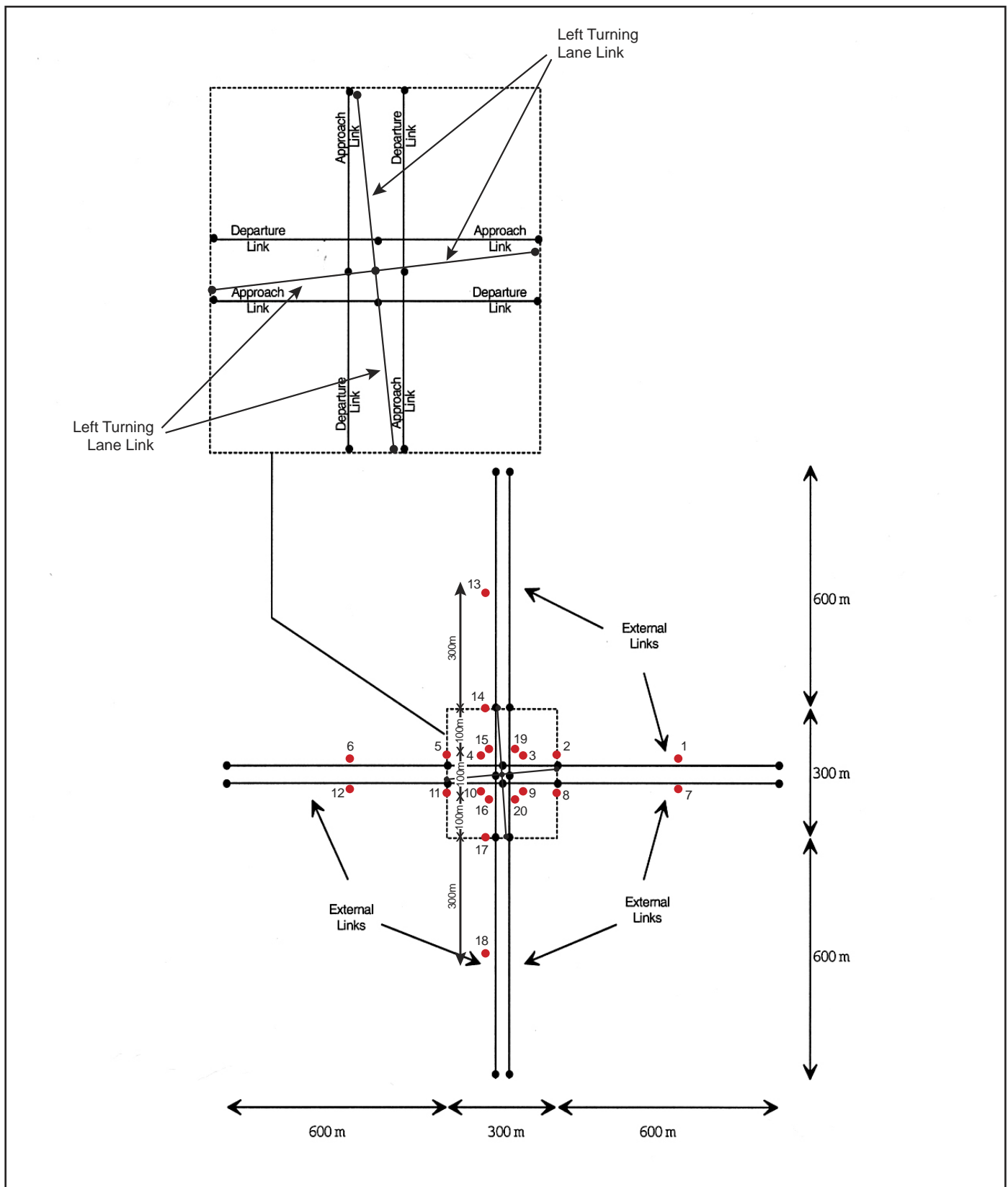
#### **a. CO Hot Spot Modeling**

A carbon monoxide (CO) hot spot model was conducted for the four key intersections identified below. The model addresses CO concentrations at street intersections resulting from roadway traffic circulating through the intersections, and was prepared in accordance with the Transportation Project-Level Carbon Monoxide Protocol established by Caltrans (1997). Typically, an intersection experiences increased concentrations, or “hot spots”, of CO as vehicles are slowed or idling due to traffic stops. The procedure followed is detailed in Appendix B of that protocol.

Four intersections were modeled. The intersections include:

- Broadway and H Street
- H Street and Third Avenue
- Third Avenue and E Street
- Fourth Avenue and F Street

These intersections were selected as representative examples of typical intersections in the UCSP area. The traffic volumes, intersection configuration, and cruise speeds were provided by Kimley-Horn. Concentrations were calculated for 20 receptors for each intersection. The basic configuration of the intersections and the receptor locations for a typical intersection is illustrated in Figure 5.10-1.



**FIGURE 5.10-1**  
Link and Receptor Network For a Single Intersection with Dedicated Left Turn Lanes

The detailed CO modeling assumptions and results are provided in Appendix E. The results of the calculations are presented in the following tables. Table 5.10-8 provides the modeled CO concentration from intersection for a winter condition. Table 5.10-9 combines the intersection contribution with the maximum concentration as measured at the Chula Vista monitoring station. The summer concentrations for these conditions are provided in Tables 5.10-10 and 5.10-11.

The maximum predicted one-hour CO concentration occurred in the winter and is 6.6 ppm. The maximum predicted eight-hour concentration is 5.3 ppm and also occurs in the winter. These concentrations do not exceed the California or federal ambient air quality standards for carbon monoxide, and demonstrate that future traffic volumes can operate without exposing people to substantial CO concentrations. The hot spot analysis conducted for this report is based on traffic parameters projected for buildout conditions. The potential for hot spot impacts resulting from future conditions will depend upon the specific conditions at a given time. The actual future performance of an intersection will depend upon the timing of development and the timing of roadway and intersection improvements.

## **b. Health Risk Assessment**

Consistent with General Plan Update Policy EE 6.10, a health risk assessment was performed to consider the potential effects of placement of sensitive uses (e.g., residential uses) within 500 feet of Interstate 5. The HRA is included as Chapter 6.0 of the Air Quality Report (see Appendix E). The HRA included the calculation of potential cancer risk and a chronic health hazard index resulting from exposure to diesel particulates. The calculation involved generating an emission rate for diesel particulates using the Emfac2002 program. The emission factors assumed the default parameters for the San Diego Air Basin provided by the model. Emission factors were calculated for both summer and winter conditions.

These emission factors were then applied to the vehicles using the freeway, and dispersed using the Caline4 dispersion model. This model results in concentrations at locations along the roadway. The Caline4 model is a line source model that does not specifically address topographic variability or intervening structures. It should be noted that the Interstate 5 freeway is up to 30 feet lower in elevation than those adjacent areas currently developed with uses and proposed for new mixed-use residential and high-density residential uses. The proposed scale of the new development may also include structures that are mid to high rise (at trolley stations) unlike the low scale one-two story structures that exist today. Based on these concentrations, a cancer risk measured in terms of number of cancers per million was determined.

Calculations were made for receivers along the freeway at distances of 150, 300, and 500 feet from the center of the freeway. Wind direction was taken into account based on a wind rose obtained from the San Diego Air Pollution Control District for Chula Vista. This information included direction and strength. A copy of the wind rose is included in



**TABLE 5.10-9  
TOTAL WINTER CO CONCENTRATIONS AT MODELED RECEIVERS**

Receivers	Broadway Avenue/H Street		H Street/Third Avenue		Third Avenue/E Street		Fourth Avenue/F Street	
	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)
1	6.3	5.04	6.2	4.96	6.1	4.88	6.0	4.80
2	6.6	5.28	6.4	5.12	6.2	4.96	6.0	4.80
3	6.6	5.28	6.4	5.12	6.1	4.88	6.1	4.88
4	6.6	5.28	6.4	5.12	6.1	4.88	6.1	4.88
5	6.6	5.28	6.4	5.12	6.1	4.88	6.0	4.80
6	6.4	5.12	6.2	4.96	6.1	4.88	6.0	4.80
7	6.4	5.12	6.2	4.96	6.1	4.88	6.0	4.80
8	6.6	5.28	6.4	5.12	6.2	4.96	6.0	4.80
9	6.6	5.28	6.4	5.12	6.2	4.96	6.1	4.88
10	6.6	5.28	6.4	5.12	6.2	4.96	6.1	4.88
11	6.6	5.28	6.4	5.12	6.2	4.96	6.1	4.88
12	6.3	5.04	6.2	4.96	6.1	4.88	6.0	4.80
13	6.3	5.04	6.2	4.96	6.0	4.80	6.1	4.88
14	6.6	5.28	6.3	5.04	6.1	4.88	6.2	4.96
15	6.6	5.28	6.3	5.04	6.1	4.88	6.2	4.96
16	6.6	5.28	6.4	5.12	6.1	4.88	6.2	4.96
17	6.6	5.28	6.4	5.12	6.2	4.96	6.3	5.04
18	6.3	5.04	6.2	4.96	6.1	4.88	6.1	4.88
19	6.5	5.20	6.4	5.12	6.1	4.88	6.2	4.96
20	6.5	5.20	6.4	5.12	6.1	4.88	6.2	4.96

**TABLE 5.10-8  
MODELED WINTER CO CONCENTRATIONS DUE TO TRAFFIC**

Receivers	Broadway Avenue/H Street		H Street/Third Avenue		Third Avenue/E Street		Fourth Avenue/F Street	
	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)
1	0.5	0.40	0.4	0.32	0.3	0.24	0.2	0.16
2	0.8	0.64	0.6	0.48	0.4	0.32	0.2	0.16
3	0.8	0.64	0.6	0.48	0.3	0.24	0.3	0.24
4	0.8	0.64	0.6	0.48	0.3	0.24	0.3	0.24
5	0.8	0.64	0.6	0.48	0.3	0.24	0.2	0.16
6	0.6	0.48	0.4	0.32	0.3	0.24	0.2	0.16
7	0.6	0.48	0.4	0.32	0.3	0.24	0.2	0.16
8	0.8	0.64	0.6	0.48	0.4	0.32	0.2	0.16
9	0.8	0.64	0.6	0.48	0.4	0.32	0.3	0.24
10	0.8	0.64	0.6	0.48	0.4	0.32	0.3	0.24
11	0.8	0.64	0.6	0.48	0.4	0.32	0.3	0.24
12	0.5	0.40	0.4	0.32	0.3	0.24	0.2	0.16
13	0.5	0.40	0.4	0.32	0.2	0.16	0.3	0.24
14	0.8	0.64	0.5	0.40	0.3	0.24	0.4	0.32
15	0.8	0.64	0.5	0.40	0.3	0.24	0.4	0.32
16	0.8	0.64	0.6	0.48	0.3	0.24	0.4	0.32
17	0.8	0.64	0.6	0.48	0.4	0.32	0.5	0.40
18	0.5	0.40	0.4	0.32	0.3	0.24	0.3	0.24
19	0.7	0.56	0.6	0.48	0.3	0.24	0.4	0.32
20	0.7	0.56	0.6	0.48	0.3	0.24	0.4	0.32

**TABLE 5.10-10  
MODELED SUMMER CO CONCENTRATIONS DUE TO TRAFFIC**

Receivers	Broadway Avenue/H Street		H Street/Third Avenue		Third Avenue/E Street		Fourth Avenue/F Street	
	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)
1	0.7	0.56	0.5	0.40	0.4	0.32	0.2	0.16
2	1.0	0.80	0.7	0.56	0.5	0.40	0.3	0.24
3	1.0	0.80	0.7	0.56	0.4	0.32	0.3	0.24
4	1.0	0.80	0.7	0.56	0.4	0.32	0.3	0.24
5	1.0	0.80	0.7	0.56	0.4	0.32	0.3	0.24
6	0.7	0.56	0.5	0.40	0.4	0.32	0.2	0.16
7	0.7	0.56	0.6	0.48	0.4	0.32	0.3	0.24
8	1.0	0.80	0.8	0.64	0.5	0.40	0.3	0.24
9	1.0	0.80	0.8	0.64	0.5	0.40	0.3	0.24
10	1.0	0.80	0.8	0.64	0.5	0.40	0.3	0.24
11	1.0	0.80	0.8	0.64	0.5	0.40	0.3	0.24
12	0.7	0.56	0.5	0.40	0.4	0.32	0.3	0.24
13	0.6	0.48	0.5	0.40	0.3	0.24	0.4	0.32
14	1.0	0.80	0.7	0.56	0.4	0.32	0.6	0.48
15	1.0	0.80	0.6	0.48	0.4	0.32	0.5	0.40
16	1.0	0.80	0.7	0.56	0.4	0.32	0.5	0.40
17	1.0	0.80	0.7	0.56	0.4	0.32	0.6	0.48
18	0.7	0.56	0.5	0.40	0.3	0.24	0.4	0.32
19	0.9	0.72	0.7	0.56	0.4	0.32	0.5	0.40
20	0.9	0.72	0.7	0.56	0.4	0.32	0.5	0.40

**TABLE 5.10-11  
TOTAL SUMMER CO CONCENTRATIONS AT MODELED RECEIVERS**

Receivers	Broadway Avenue/H Street		H Street/Third Avenue		Third Avenue/E Street		Fourth Avenue/F Street	
	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)	1-hour CO Concentration Due to Traffic (ppm)	8-hour CO Concentration Due to Traffic (ppm)
1	3.4	2.72	3.2	2.56	3.1	2.48	2.9	2.32
2	3.7	2.96	3.4	2.72	3.2	2.56	3.0	2.40
3	3.7	2.96	3.4	2.72	3.1	2.48	3.0	2.40
4	3.7	2.96	3.4	2.72	3.1	2.48	3.0	2.40
5	3.7	2.96	3.4	2.72	3.1	2.48	3.0	2.40
6	3.4	2.72	3.2	2.56	3.1	2.48	2.9	2.32
7	3.4	2.72	3.3	2.64	3.1	2.48	3.0	2.40
8	3.7	2.96	3.5	2.80	3.2	2.56	3.0	2.40
9	3.7	2.96	3.5	2.80	3.2	2.56	3.0	2.40
10	3.7	2.96	3.5	2.80	3.2	2.56	3.0	2.40
11	3.7	2.96	3.5	2.80	3.2	2.56	3.0	2.40
12	3.4	2.72	3.2	2.56	3.1	2.48	3.0	2.40
13	3.3	2.64	3.2	2.56	3.0	2.40	3.1	2.48
14	3.7	2.96	3.4	2.72	3.1	2.48	3.3	2.64
15	3.7	2.96	3.3	2.64	3.1	2.48	3.2	2.56
16	3.7	2.96	3.4	2.72	3.1	2.48	3.2	2.56
17	3.7	2.96	3.4	2.72	3.1	2.48	3.3	2.64
18	3.4	2.72	3.2	2.56	3.0	2.40	3.1	2.48
19	3.6	2.88	3.4	2.72	3.1	2.48	3.2	2.56
20	3.6	2.88	3.4	2.72	3.1	2.48	3.2	2.56

Figure 5.10-2. For each 22.5 degree wind angle, a particulate concentration was calculated, weighted for the duration of the wind and combined into a cancer exposure. This was done for each of the three sets of receivers and for summer and winter conditions. Table 5.10-12 provides the angles and duration of the wind used in the analysis.

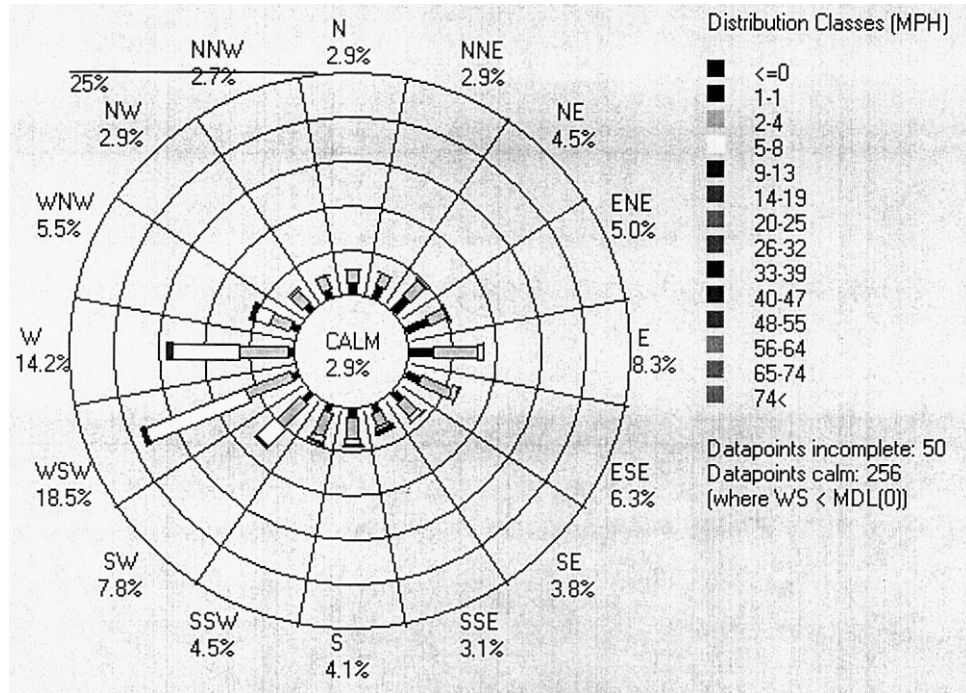
Runs were completed for both winter and summer conditions, with temperatures of 7.2 C and 27.2 C, respectively. The results do not vary because the pollutant is PM<sub>10</sub> and not affected by temperature. A traffic volume of 8566.3 vph/1 hour was used and obtained from KHA traffic study prepared for the UCSP. An emission factor of 0.0032 g/mi hour<sup>1</sup> was used. Because the emission factor is so low, as applied to the total vph, a 100x magnification was used to allow the results to be displayed. Resulting data were thus divided by 100 to provide actual values.

**TABLE 5.10-12  
WIND DIRECTION AND RELATIVE DURATION**

Wind Direction	Angle	Average Wind Speed (meters/second)	Relative Duration
N	0.0	0.89	0.029
NNE	22.5	0.89	0.029
NE	45.0	1.16	0.045
ENE	67.5	0.85	0.050
E	90.0	1.16	0.083
ESE	112.5	1.21	0.063
SE	135.0	1.30	0.038
SSE	157.5	2.00	0.031
S	180.0	1.34	0.041
SSW	202.5	1.74	0.045
SW	225.0	1.88	0.078
WSW	247.5	2.41	0.185
W	270.0	2.30	0.142
WNW	292.5	2.10	0.055
NW	315.0	1.21	0.029
NNW	337.5	0.94	0.027

The results of the cancer risk are provided in Table 5.10-13. The calculated risk ranges from a high of 230 in 1,000,000 at some receptors 150 feet from the source to a low of 71 in 1,000,000 at 500 feet from the road. It should be noted that incremental cancer risk is calculated assuming a 24 hour per day 70 year lifetime exposure. The assessment also does not account for significant mobile source emission reductions mandated to occur by state and federal regulations over the next 5-15 years.

In April 2005, the California Air Resources Board (CARB) published the "Air Quality and Land Use Handbook: A Community Health Perspective." The handbook makes recommendations directed at protecting sensitive land uses while balancing a myriad of other land use issues (e.g. housing, transportation needs, economics). It notes that the



**FIGURE 5.10-2**  
Windrose for Chula Vista



handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Although there is no adopted standard for mobile sources, such as the freeway, the effects detailed in Table 5.10-13 are considered to be cumulatively significant. The only means of reducing these effects is the implementation of source controls. The CARB has worked on developing strategies and regulations aimed at reducing the risk from diesel particulate matter. The overall strategy for achieving these reductions is found in the “Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles” (State of California 2000). A stated goal of the plan is to reduce the cancer risk statewide arising from exposure to diesel particulate matter 75 percent by 2010 and 85 percent by 2020. A number of programs and strategies to reduce diesel particulate matter that have been or are in the process of being developed include the Diesel Risk Reduction Program which aims to reduce diesel particulate emission over the next 5 to 15 years through improved automobile design and alternative fuel efficiency (State of California 2005a, <http://www.arb.ca.gov/diesel/dieselrrp.htm>). These programs are outside of the jurisdiction of the City of Chula Vista.

However, in recognition of the guidance provided in the CARB handbook, the UCSP Development Design Guidelines (Chapter VII, Section G.5) have incorporated site design measures to be considered by future redevelopment adjacent to I-5, where possible, to help minimize effects. These measures include siting residential uses away from the freeway to the extent possible, tiering residential structures back from the freeway, and incorporating mechanical and structural measures into the building design. While these measures may serve to reduce the severity of diesel particulate emissions impacts, implementation of diesel vehicles source control measures by State authorities would be required to reduce cumulative impacts to below significance.

### 5.10.3.5 Objectionable Odors

- **Criterion 5: Create objectionable odors affecting a substantial number of people.**

There are no odor generators proposed by the UCSP, and the plan does not place sensitive receivers adjacent to an odor source.

## 5.10.4 Level of Significance Prior to Mitigation

- **Criterion 1: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan**

Measures have been incorporated into the project design to lessen air quality impacts. The UCSP has been prepared using the smart growth principles foundational to the General Plan Update such as providing a mix of compatible land uses; locating highest density near

**TABLE 5.10-13  
INCREMENTAL CANCER RISK**

150 Receptors																	
Receiver	Wind Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
1	2.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-05	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.27E-04
2	4.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-05	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.29E-04
3	5.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-05	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.30E-04
4	6.61E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-05	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.30E-04
5	7.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-05	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.30E-04
6	7.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-05	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.30E-04
7	7.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.61E-06	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.30E-04
8	7.85E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.39E-06	2.10E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.29E-04
9	8.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.24E-06	2.12E-05	3.06E-05	6.73E-05	4.97E-05	2.00E-05	1.14E-05	1.26E-05	2.26E-04
10	2.44E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.02E-06	2.39E-05	5.14E-05	3.75E-05	1.44E-05	7.99E-06	9.62E-06	1.51E-04
11	4.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-05	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.75E-04
12	5.81E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.76E-04
13	6.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-05	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.76E-04
14	6.95E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-05	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.76E-04
15	7.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-05	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.76E-04
16	7.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-05	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.76E-04
17	7.73E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.45E-06	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.76E-04
18	7.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-06	1.84E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.75E-04
19	7.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.08E-06	1.85E-05	2.40E-05	4.79E-05	3.40E-05	1.42E-05	8.91E-06	1.10E-05	1.72E-04
20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-06	2.20E-05	4.43E-05	3.11E-05	1.19E-05	6.83E-06	8.89E-06	1.29E-04

300 Receptors																	
Receiver	Wind Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
1	3.48E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.36E-06	1.29E-04
2	5.22E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.91E-06	1.29E-04
3	1.24E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.92E-06	1.30E-04
4	1.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.92E-06	1.30E-04
5	2.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.93E-06	1.30E-04
6	2.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.93E-06	1.30E-04
7	2.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-06	1.15E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.93E-06	1.30E-04
8	2.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-06	1.16E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.93E-06	1.29E-04
9	3.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-07	1.24E-05	1.82E-05	3.97E-05	2.96E-05	1.18E-05	6.75E-06	6.93E-06	1.29E-04
10	3.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-07	1.55E-05	3.58E-05	2.60E-05	9.92E-06	5.97E-06	6.87E-06	1.03E-04
11	3.48E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.69E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.17E-06	1.18E-04
12	5.22E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.50E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.71E-06	1.18E-04
13	1.24E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.19E-04
14	1.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.19E-04
15	2.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.19E-04
16	2.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.19E-04
17	2.73E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.19E-04
18	2.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-06	1.12E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.18E-04
19	3.09E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-07	1.21E-05	1.68E-05	3.56E-05	2.62E-05	1.06E-05	6.25E-06	6.73E-06	1.18E-04
20	3.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-07	1.49E-05	3.34E-05	2.38E-05	9.06E-06	5.56E-06	6.68E-06	9.68E-05

**TABLE 5.10-13  
INCREMENTAL CANCER RISK**

500-foot Receptors		Wind Direction																
Receiver	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-06	8.75E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	2.19E-06	8.99E-05	
2	2.61E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-06	8.75E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.02E-06	9.26E-05	
3	2.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-06	8.75E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.18E-06	9.28E-05	
4	5.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-06	8.75E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.22E-06	9.29E-05	
5	8.96E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-06	8.73E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.23E-06	9.29E-05	
6	1.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-06	8.73E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.24E-06	9.27E-05	
7	1.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.36E-07	8.72E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.25E-06	9.24E-05	
8	1.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-07	8.82E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.25E-06	9.21E-05	
9	1.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.29E-06	1.31E-05	2.86E-05	2.12E-05	8.50E-06	4.86E-06	5.25E-06	9.25E-05	
10	1.87E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.88E-06	2.75E-05	2.04E-05	7.92E-06	4.78E-06	5.25E-06	7.46E-05	
11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-06	8.64E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	2.15E-06	8.58E-05	
12	2.61E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-06	8.64E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	4.95E-06	8.85E-05	
13	2.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-06	8.63E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.12E-06	8.87E-05	
14	5.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-06	8.63E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.15E-06	8.88E-05	
15	8.96E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-06	8.63E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.17E-06	8.88E-05	
16	1.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-06	8.61E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.17E-06	8.86E-05	
17	1.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.36E-07	8.61E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.18E-06	8.83E-05	
18	1.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-07	8.69E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.18E-06	8.80E-05	
19	1.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.19E-06	1.26E-05	2.71E-05	1.99E-05	8.05E-06	4.68E-06	5.18E-06	8.84E-05	
20	1.87E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.72E-06	2.64E-05	1.94E-05	7.52E-06	4.60E-06	5.18E-06	7.17E-05	

transit; utilizing compact building design and creating walkable communities; providing a range of infill housing opportunities; and increasing transportation choices. In particular, the UCSP focuses new development at key transit nodes and enhances alternative modes of travel by promoting walkability with enhanced pedestrian paths, augmenting existing bicycle paths, and making public transit more accessible and desirable with new and expanded public transit stops.

However, since the GPU is inconsistent with the former General Plan upon which the goals and objectives of the RAQS were based, and the proposed UCSP conforms to the GPU, adoption of the proposed UCSP would result in significant conflict with an applicable air quality plan.

- **Criterion 2: Violate any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation**

There are no existing or projected air quality violations in the UCSP area. Furthermore, there are no toxic air emitters proposed as part of the UCSP. All proposed land uses are either multi-family residential, commercial, retail or public uses, and no industrial uses are proposed. Therefore, there will not be a significant contribution to an existing or projected air quality violation, and no significant impact relative to Criteria 2.

- **Criterion 3: Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard**

As shown on Table 5.10-7, the proportional increase in multi-family units to single-family units and resulting decrease in number of vehicle trips per unit and the anticipated improvement in motor vehicle emissions result in an expected decrease in pollutants over existing conditions for all pollutants except SO<sub>2</sub> and PM<sub>10</sub>. Since the region is not in compliance with the PM<sub>2.5</sub> and PM<sub>10</sub> standard, and because the average daily emission is anticipated to increase, impacts are considered significant, until the region is in compliance.

- **Criterion 4: Expose Sensitive Receptors to Substantial Pollutant Concentrations such as Ozone or Respirable Particulates (PM<sub>10</sub>)**

Although there is no adopted standard for sensitive receivers adjacent to Interstate 5, it was determined that air quality impacts from diesel particulates emanating from the freeway would be cumulatively significant given current basin-wide noncompliance with particulate standards and projected future levels of diesel particulates emanating from Interstate 5.

The project area is not exposed to an incremental cancer risk of greater than 10 in 1,000,000 from a major toxic emitter. Furthermore, CO concentrations do not exceed the California or federal ambient air quality standards for carbon monoxide, and predictive modeling demonstrates that future traffic volumes can operate without exposing people to

substantial CO concentrations. The analysis conducted for the UCSP indicates that there will not be CO hotspots as a result of the buildout of the UCSP. Conformance to Policy LUT 13.2 of the GPU requiring the optimization and maintenance the performance of the traffic signal system and the street system, to facilitate traffic flow and to minimize vehicular pollutant emission levels will ensure that intersections operate at an adequate level of service to avoid potential CO concentrations in excess of adopted standards. Projected CO levels are thus considered to be not significant.

- **Criterion 5: Create Objectionable Odors Affecting a Substantial Number of People**

The UCSP does not propose uses that would create a significant odor impact, nor does it place a sensitive user in an area exposed to objectionable odors.

## **5.10.5 Mitigation**

### **5.10.5.1 Air Quality Plan**

A significant air quality impact stems from an inconsistency between the land uses envisioned in the currently adopted GPU and the former General Plan upon which the RAQS were based. The only measure that can lessen this Criterion 1 impact is the revision of the RAQS based on the recently adopted GPU. This effort is the responsibility of SANDAG and San Diego APCD and is outside the jurisdiction of the City. Nonetheless, mitigation measure 5.10.5-1 is provided as an advisory measure.

#### **Mitigation Measure**

5.10.5-1 The City of Chula Vista shall recommend to SANDAG to update the RAQS in the next triennial cycle to incorporate the increased land use densities of the GPU and UCSP.

### **5.10.5.2 Air Quality Standards**

Conformance to Mitigation Measure 5.10.5-2 will reduce Criteria 3 and 4 air quality impacts which may result from implementation of the UCSP.

#### **Mitigation Measure**

5.10.5-2 Prior to issuance of an Urban Core Development Permit or other discretionary permit, all subsequent individual development projects shall demonstrate to the satisfaction of the Community Development Director, conformance with the relevant land use and development regulations (UCSP, Chapter VI) and development design guidelines (UCSP, Chapter VII) of the UCSP which support smart growth principles such as providing a mix of compatible land uses; locating highest density near transit; utilizing compact building design and creating

walkable communities; providing a range of infill housing opportunities; and increasing transportation choices.

In addition, special design guidelines are provided in the UCSP Development Design Guidelines (Chapter VII, Section G.5) to be considered by future redevelopment adjacent to I-5, where possible. These site design measures would help to minimize effects and include siting residential uses away from the freeway to the extent possible, tiering residential structures back from the freeway, and incorporating mechanical and structural measures into the building design. While these measures may serve to reduce the severity of diesel particulate emissions impacts, implementation of diesel vehicles source control measures by State authorities would be required to reduce cumulative impacts to below significance.

### **5.10.5.3 Cumulative Net Pollutant Increase**

Since the region is not in compliance with the  $PM_{2.5}$  and  $PM_{10}$  standard and because the average daily emission is anticipated to increase, impacts to Criterion 3, which addresses cumulative net increases in criteria pollutants, are considered significant.  $PM_{10}$  emissions result from construction of projects and from daily operations in the Urban Core project area. The latter is primarily a result of vehicle traffic on area roads. Mitigation is achievable for fugitive dust from construction activities, but the only measures that would reduce those emissions from daily operations are those that reduce miles traveled on area roads. As noted in the above analysis, the UCSP includes measures aimed at promoting alternative modes of travel including enhanced pedestrian and bicycle activity, use of transit and reducing trip lengths by siting highest density adjacent to key transit nodes. Implementation of the following Mitigation Measure 5.10-3 will ensure that conformance to these provisions of the UCSP is satisfied prior to issuance of subsequent project development permits.

#### **Mitigation Measures**

- 5.10.5-3 Prior to issuance of an Urban Core Development Permit or other discretionary permit, all subsequent individual development projects shall demonstrate compliance with relevant land use and development regulations contained in the UCSP to minimize air pollutant emissions. These include, but are not limited to: measures aimed at promoting pedestrian activity (Chapter V, pp. V-2- V-5); bicycle activity (Chapter V, pp. V-5 – V-7, V-9 – V-10); public transit facilities (Chapter V, pp. V-8 – V-9), including the West Side Shuttle (Chapter V, pp. V-11 – V-12); and reintroduction of the traditional street grid (Chapter V, pp. V-16 – V-19).
- 5.10.5-4 Prior to issuance of construction permits, including but not limited to, the first Grading Permit, Demolition Permit, and Urban Core Development Permit, the Community Development Director shall verify that the following active dust control practices are to be employed during construction.



1. All unpaved construction areas shall be sprinkled with water or other acceptable San Diego APCD dust control agents during dust-generating activities to reduce dust emissions. Additional watering or acceptable APCD dust control agents shall be applied during dry weather or windy days until dust emissions are not visible.
2. Trucks hauling dirt and debris shall be properly covered to reduce windblown dust and spills.
3. A 20-mile-per-hour speed limit on unpaved surfaces shall be enforced.
4. On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather.
5. On-site stockpiles of excavated material shall be covered or watered.
6. Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the City and/or APCD to reduce dust generation.
7. To the maximum extent feasible:

Heavy-duty construction equipment with modified combustion/fuel injection systems for emissions control shall be utilized during grading and construction activities.

Catalytic reduction for gasoline-powered equipment shall be used.
8. Equip construction equipment with prechamber diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of nitrogen oxide, to the extent available and feasible.
9. Electrical construction equipment shall be used to the extent feasible.
10. The simultaneous operations of multiple construction equipment units shall be minimized (i.e., phase construction to minimize impacts).

With the application of these measures, significant impacts resulting from projected PM<sub>10</sub> impacts from construction would be mitigated. Impacts resulting from daily operation would remain significant until the region is determined to be in compliance with the standard.

### **5.10.6 Level of Significance After Mitigation**

Implementation of Mitigation Measures 5.10.5-1 through 5.10.5-4 would reduce significant impacts which may result from implementation of the UCSP but not to below a level of significance. Until such time that revisions are made to the RAQS to incorporate updated land uses, that the region is in attainment of the Ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> standards, and that diesel vehicles source control measures by State authorities are implemented, impacts would remain significant and unmitigated.

## 5.11 Public Services

Public services consist of law enforcement, fire protection, schools, libraries, and parks and recreation. This section discusses the availability of public services for the proposed UCSP.

The goals expressed in the UCSP require improvements to City services such as police, fire, schools, libraries, and parks. Because the UCSP implements the GPU, the infrastructure studies performed during the City's GPU effort and resulting citywide implementation strategies provide the basis of utilities and services needed for the urban core. Chapter IX of the UCSP focuses on the GPU infrastructure and public facilities policies and criteria that have particular relevance to the UCSP area. Chapter X of the UCSP identifies the implementation programs that will result in the desired improvements. Realization strategies include public and public/private partnerships to generate funding and investment in the urban core through development and business fees, redevelopment funds, grants, TransNet (a one-half cent regional sales tax dedicated to transportation projects), and the general fund as funding sources.

In January 1991, the Chula Vista City Council adopted Ordinance No. 2320 establishing a Development Impact Fee (DIF) to pay for various public facilities within the City of Chula Vista (Chula Vista Municipal Code, Chapter 3.50). The general intent of this ordinance is to require that adequate public facilities be available to accommodate increased population created by new development within the City. The City determined that new development contributes to the cumulative burden on existing public facilities, which must be mitigated by the financing and construction of new facilities. The City determined that a reasonable means of financing the public facilities is to charge a fee on all development in the City. The resulting fee schedule has been adopted in accordance with Government Code Section 66000. Subsequent projects developed under the UCSP will be subject to the payment of development impact fees at the rate in effect at the time building permits are issued. The Municipal Code includes provisions that require the City to use the development impact fees to construct needed improvements and to ensure that adequate funds are available in the impact fee account to build the needed improvements.

School services are additionally addressed in State Senate Bill 50. Senate Bill 50 was enacted to obtain support from the Building Industry Association for school bond issues and prohibits local governments from requiring extra fees or the establishment of a Mello Roos from new development to finance schools. The legislation provides that statutory fees are the exclusive means of considering as well as mitigating school impacts.

A Facilities Implementation Analysis is being prepared concurrent with the UCSP to evaluate ongoing, long-term improvement projects and determine whether long-term projects revenues are sufficiently aligned with long-term potential costs of public infrastructure. Monitoring of the progress of the UCSP in reaching its infrastructure and

public facilities goals will include review under the Growth Management Ordinance, bi-annual review of amenities and facilities implementation in conjunction with the budget/CIP review cycle, and a five-year assessment of the progress of the UCSP. To monitor the effectiveness of the UCSP in responding to the changing landscape of the urban core, a Five-Year Progress Report will be prepared and included as part of budget cycle or strategic plan updates.

The Growth Management Ordinance (Municipal Code 19.09) includes a program to implement the GPU and ensure that development does not occur unless facilities and improvements are available to support that development. The growth management program incorporates a defined public facilities development phasing policy to appropriately schedule the timing and location of various City improvements. The program additionally incorporates the facility master plans for fire protection, schools, libraries, parks, water, sewer, drainage, traffic and civic centers. The Growth Management Oversight Commission annually reviews and reports on the program to the Chula Vista Planning Commission and City Council.

Various improvement projects envisioned in the UCSP will also be subject to ongoing monitoring and priority-setting through the Capital Improvement Program (CIP) processes. Schedule assessments will be made during the bi-annual CIP budget analysis and review of facilities performance. Facing any change in priorities, additions or subtractions from the facilities program will not require amendment of the UCSP provided such changes are not in conflict with the this EIR.

The City Council adopted the Threshold Standards Policy for Chula Vista in November 1987, which established “quality of life” indicators for the five public service topics addressed in this section. Each topic was addressed in the Policy in terms of a goal, objective(s), a threshold, and implementation measures. These standards are intended to preserve and enhance the environment and City residents’ quality of life as growth occurs.

## **5.11.1 Law Enforcement**

### **5.11.1.1 Existing Conditions**

Police protection for the City of Chula Vista is provided by the Chula Vista Police Department. There is one central police station within the city located at 315 Fourth Avenue, within the UCSP Village District. All police operations are based out of this one central facility. The department averages 1.17 sworn employees per 1,000 residents. The Department is recruiting new officers and has approximately 15 officers in training.

The UCSP Subdistricts area is within Patrol Beats 11, 12, and 13, which are served by at least one patrol car 24 hours a day. Officers respond to calls citywide. The beat strength does not include traffic units, school resource officers, roving patrol officers, patrol

sergeants, and investigative division units that service the city as needed. Beats within sectors take into account call volumes and natural geographic or manmade boundaries.

The Chula Vista Police Department response times are guided by the Growth Management Oversight Commission's (GMOC) Quality of Life Threshold Standards. These standards are used to determine whether there are adequate facilities, staff, and equipment to provide police protection throughout the City of Chula Vista. On May 28, 2002, these threshold standards were adjusted by the City Council with the adoption of Ordinance 2860 to correct a technical error made in the original threshold calculation.

For emergency response, police units must respond to 81 percent of Priority One emergency calls within seven minutes and maintain an average response time of 5.5 minutes or less. Priority One calls include felony crimes in progress, life-threatening situations, and injury to property. For Priority Two Urgent calls, the police units must respond to 57 percent of the calls within seven minutes with an average response time to all Priority Two calls within 7.5 minutes or less. Priority Two calls include misdemeanor crimes in progress, non-life-threatening situations, possible injury to property, and emergency public services such as traffic signal failure. The GMOC 2005 Annual Report concluded that the Chula Vista Police Department is not meeting the threshold standard for Priority Two calls.

Despite increasing population and traffic volumes, emergency response in the city has improved over the last year. During the most recent reporting period, 82.1 percent of emergency calls (Table 5.11-1) and 48.4 percent of urgent calls were responded to within seven minutes. Additionally, the city has experienced an 8 percent decline in crime rates over the last five years.

**TABLE 5.11-1  
RESPONSE TIMES  
EMERGENCY CALLS FOR SERVICE**

Fiscal year	Call Volume	Percent of Call Response within Seven Minutes	Average Response Time
Emergency Response Threshold		81.0	5:30
2004	1,322 of 71,000	82.1	4:52
2002-03	1424 of 71268	80.8	4:55
2001-02	1539 of 71859	80.0	5:07
2000-01	1734 of 73977	79.7	5:13
1999-00	1750 of 76738	75.9	5:21
CY 1999*	1890 of 74405	70.9	5:50

\*The 1998-99 Fiscal Year report used calendar year (CY) 1999 data due to implementation of new CAD system mid-1998.

Response time is just one measure of how police services are keeping pace with growth. The City has implemented measures to improve police response time. These measures range from maintaining full staffing to technological improvements.

GPU policy PFS 5.4 requires that the City provide adequate law enforcement staff and equipment equivalent to the existing ratio of police officers to population to meet established service standards. GPU policy GM 1.1 calls for the city to maintain a set of threshold standards which are policy based quantitative level of service measures as a tool to assess the impact of new service demands.

### **5.11.1.2 Criteria for Determination of Significance**

Adoption of the UCSP would have a significant impact on police services if it would:

- **Criterion 1:** Result in the inability of the City to provide an adequate level of law enforcement service in accordance with the adopted standards and thresholds as follows:

For emergency response, police units must respond to 81 percent of Priority One emergency calls within seven minutes and maintain an average response time of 5.5 minutes or less.

For Priority Two Urgent calls, the police units must respond to 57 percent of the calls within seven minutes with an average response time to all Priority Two calls within 7.5 minutes or less.

### **5.11.1.3 Impacts**

- **Criterion 1: Adequate Level of Law Enforcement Service.**

The Police Department currently meets the City threshold for responding to Priority One calls within seven minutes but does not meet the City threshold for Priority Two calls. The Police Department currently responds to 82.1 percent of Priority I calls and 48.4 percent of Priority II calls within the seven-minute response threshold.

The land uses allowed in the UCSP would result in an increase in calls for police service within the Subdistricts Area. Increased traffic congestion as a result of growth in the urban core would hinder timely responses to emergency calls. Adherence to police protection standards would be necessary to ensure that adequate levels of service are maintained. The facility at Fourth and F Streets in the City to Chula Vista would meet the law enforcement needs created by increased demand from new development in the region, including the proposed project. However, in order to maintain response times, more police officers will be needed. The exact number of additional personnel is difficult to forecast and will be determined as growth occurs in the UCSP over the next 25 years. The 7,100 additional residential units and 3.6 million square feet of commercial space permitted in the UCSP would place substantial demands on existing law enforcement services. Although the exact number of staff required to serve the project is undetermined, according to the Chula Vista Police Department, “regardless of the size of the development, the City would

make staffing changes based upon any increases in calls for service (Chew, pers. Com. 2005). Adjustments to personnel will continue to be made as part of the City's budget cycle. Impacts to the provision of law enforcement services would be significant if provision of additional personnel does not coincide with the anticipated population growth and increased demand for law enforcements services.

The Police Department is anticipating meeting the challenges of overall growth in the city with technological upgrades to equipment. These upgrades could include a computer-aided dispatch system integrated with in-car global positioning system (GPS) systems, MDC mapping capabilities in every car, and the ongoing efforts to reduce false alarms. The department is also seeking support for research into alternative call management options to correctly prioritize calls and improve deployment tactics including revised beat configurations, bike patrol units, and a possible aerial component.

The UCSP includes an assessment of enhancements to police protection services in relation to projected buildout of the UCSP over the 25-year project horizon (Chapter IX). . Through the Growth Management and Police Master plans, the City will continue to monitor law enforcement services needs. As part of the City's annual budget cycle review, the need for new law enforcement personnel would be assessed, funded and added as necessary to maintain threshold standards. Public Facilities Development Impact Fee programs will provide capital funding for additional facilities. These facilities will include the kinds of specialized equipment to serve the form of development within the urban core, mid to high-rise structures

#### **5.11.1.4 Summary of Significance Prior to Mitigation**

Development of the proposed project would result in a significant impact to law enforcement services because of the anticipated increase in calls for service and the additional travel time required to answer these calls. While the police facility at Fourth and F Streets is sufficient to meet the increased demand resulting from development, more police officers will be needed in order to maintain response times. Significant impacts would result if timing of these provisions does not coincide with projected increase in demand for services and population growth.

#### **5.11.1.5 Mitigation Measures**

The following measure will mitigate impacts to the provision of adequate law enforcement services resulting from the adoption of the UCSP to below a level of significance.

**Mitigation Measure**

- 5.11.1-1 Subsequent development projects shall demonstrate that significant impacts to police services resulting from an individual project are addressed prior to approval of an Urban Core Development permit or other discretionary approval. As part of project review, subsequent development projects shall be evaluated for adequate access for police vehicles (pursuant to GPU Policy PFS 6.1) and integration of Crime Prevention Through Environmental Design (CPTED) techniques (pursuant to GPU Policy PFS 6.3).
- 5.11.1-2 As a condition of project approval, individual developers shall pay the public facilities development impact fees at the rate in effect at the time building permits are issued.
- 5.11.1-3 As part of the annual budgeting process, the City will assess the need for additional police personnel to provide protection services consistent with established City service levels and commensurate with the increase in population.

**5.11.1.6 Summary of Significance After Mitigation**

Project-related impacts to police protection would be reduced below a level of significance with implementation of the mitigation measures 5.11.1-1 through 5.11.3 for the proposed project.

**5.11.2 Fire Protection and Emergency Medical Services****5.11.2.1 Existing Conditions**

Fire protection for the City of Chula Vista is provided by the Chula Vista Fire Department. Fire stations are positioned throughout the City to satisfy the service levels established by these threshold standards. Fire Station No. 1 is located at 477 F Street within the UCSP Subdistricts Area. The Fire Department follows the Growth Management Oversight Committee Quality of Life Threshold Standards for fire protection established by the City of Chula Vista. The threshold standards require properly equipped and staffed fire and medical units to respond to calls citywide within seven minutes for 80 percent of the cases.

The Fire Station Master Plan (City of Chula Vista 1997) evaluates the planning area's fire coverage needs and recommends a nine-station network at GPU buildout to maintain compliance with the threshold standard. Currently, the City is served by seven fire stations within the city limits, plus an additional station located in the Bonita-Sunnyside Fire Protection District. The current Fire Station Master Plan, which calls for nine fire stations citywide, is being updated to reflect changes to GPU land uses and to respond to a revised



set of performance criteria as proposed in the Fire Department Strategic Plan. Therefore, the number and locations of future fire stations along with how they are equipped may change.

The Chula Vista Fire Department maintains approximately 126.75 permanent full-time employees. The department currently serves a population of approximately 209,200 people in an area over 50 square miles and responds to more than 12,000 calls annually. Fire Station No. 1 located at 447 F Street serves the UCSP area and plans are being developed for a new and larger Station No. 1, allowing for additional response units to be housed.

According to the GMOC 2005 report, emergency response times were not met during the July 2003 to June 2004 reporting period. Approximately 85 percent of the Department's priority calls for service are in the emergency medical services area. As indicated on Table 5.11-2, 72.9 percent of emergency calls were responded to within seven minutes during the most recent reporting period, compared with the 80 percent requirement in the threshold standard.

**TABLE 5.11-2  
FIRE/EMS EMERGENCY RESPONSE TIMES**

Year	Call Volume	Percent of Calls Responded to within Seven minutes
Emergency Response Threshold		80.0
2004	8,420	72.9
2002-03	8,088	75.5
2001-02	7,626	69.7
2000-01	7,128	80.8
1999-00	6,654	79.7
CY 1999	6,344	77.2
CY 1998	4,119	81.9
CY 1997	6,275	82.4
CY 1996	6,103	79.4
CY 1995	5,885	80.0
CY 1994	5,701	81.7

Emergency medical services to the proposed project area are currently provided by American Medical Response, which provides contract emergency medical services for the city of Chula Vista. There are two American Medical stations that provide paramedics with emergency medical training to the City of Chula Vista exclusively.

### **5.11.2.2 Criteria for Determination of Significance**

The proposed project would have a significant impact on fire protection services if it:

- Criterion 1: Results in the inability for the City to provide an adequate level fire protection service in accordance with the adopted standards and threshold:

For calls citywide, fire units must respond within seven minutes for 80 percent of emergency calls.

### 5.11.2.3 Impacts

- **Criterion 1: Adequate Level of Fire Protection Service.**

The Chula Vista Fire Department does not currently meet the threshold standards established for response time which requires properly equipped and staffed fire and medical units to respond to calls citywide within seven minutes for 80 percent of the cases. However, the 2005 GMOC Report indicated that during the latest reporting period that travel time component has improved as has dispatch and that increased response time is attributable to turnout time. Response time in the UCSP area is better than the citywide average, due to the traditional street grid pattern, increased density, and flat terrain; which all decrease response time.

The land uses proposed for the UCSP project would increase the demand for fire protection services by increasing development densities in the UCSP Subdistricts Area. Because of the need to respond to calls within the current seven-minute response threshold time, or other applicable threshold standard(s) which may be established in the future, regardless of land use, it is anticipated that additional fire protection personnel will be needed to ensure compliance with the applicable threshold standard(s). Impacts to fire and emergency medical services would be significant if provision of additional personnel does not coincide with the project's anticipated population growth and increased demand for services.

The UCSP includes an assessment of enhancements to fire protection services in relation to projected buildout of the UCSP over the 25-year planning horizon (Chapter IX). Through the Growth Management and Fire Master plans, the City will continue to monitor fire protection and emergency medical services needs. Public Facilities Development Impact Fee programs will provide capital funding for additional facilities. These facilities will include the kinds of specialized equipment to serve the mid to high-rise development proposed within the UCSP Subdistricts Area. The updated Fire Master Plan, anticipated to be completed by mid-2006, has indicated that sufficient facilities will exist to serve the proposed UCSP, but to attain threshold service level, additional personnel would be required. Although the exact number of staff required to serve the project is undetermined, adjustments to personnel will continue to be made as part of the City's budget cycle. Impacts to the provision of law enforcement services would be significant if provision of additional personnel does not coincide with the anticipated population growth and increased demand for fire protection and emergency medical services.

### **5.11.2.4 Summary of Significance Prior to Mitigation**

The Chula Vista Fire Department does not currently meet the threshold standard for response time for the City, including the UCSP Subdistricts area. Buildout of the UCSP would increase demand for fire protection services. However, as population growth in the service area warrants, additional fire protection personnel and fire protection equipment and facilities would be provided. These provisions would help ensure adequate service within the requirements of the GMOC threshold standards. Significant impacts would result if timing of these provisions does not coincide with projected increase in demand for services and population growth.

### **5.11.2.5 Mitigation Measures**

The following measure will mitigate impacts to the provision of adequate fire protection services and facilities resulting from the adoption of the UCSP to below a level of significance.

#### **Mitigation Measure**

- 5.11.2-1 Prior to approval, subsequent individual development projects in the UCSP shall demonstrate provision of adequate access and water pressure for new buildings.
- 5.11.2-2 As a condition of project approval, individual developers shall pay the public facilities development impact fees at the rate in effect at the time building permits are issued.
- 5.11.2-3 As part of the annual budgeting process, the City will assess the need for additional fire personnel to provide protection services consistent with established City service levels and commensurate with the increase in population.

### **5.11.2.6 Summary of Significance After Mitigation**

With the implementation of Fire Protection Services Mitigation Measures 5.11.2-1, significant impacts to the provision of fire protection services resulting from the approval of the UCSP will be mitigated to less than significant.

## **5.11.3 Schools**

### **5.11.3.1 Existing Conditions**

School services are addressed in the City's Threshold Standard that states that the City shall provide the two local public school districts with an annual report which includes a 12-

to 18-month growth forecast; and the District shall provide the City's Growth Management Oversight Commission with an evaluation of their ability to accommodate that growth.

The Chula Vista Elementary School District (CVESD) serves the proposed project area for grades kindergarten through sixth grade (K-6) students and the Sweetwater Union High School District (SUHSD) serves the area middle school (grades 7-8) students and high school (grades 9-12) students.

CVESD operates kindergarten through sixth grade. There are 34 CVESD-operated schools in the city. Established in 1892, CVESD is the largest kindergarten through sixth grade school district in California. CVESD serves approximately 25,600 students and employs approximately 2,600 people districtwide.

In addition to traditional instruction, Family Resource Centers are located on the sites of four schools. These centers offer services which include case management, counseling, emergency food, assistance with health insurance and other applications and forms, job search help, and employment internships. The District also has a Professional Development School, Model Technology Schools, Pre-service Bilingual Teacher Training Center, Dual Language Acquisition Program, State-funded Preschool Programs, and Extended Day Child Care.

The UCSP area contains three CVESD schools: Feaster-Edison located at 670 Flower Street, Vista Square located at 540 G Street, and Mueller located at 715 I Street. Feaster-Edison is currently slightly under its enrollment capacity of 1,224 with 1,089 students presently enrolled. Vista Square and Mueller also have some excess capacity, with Vista Square currently having an enrollment of 675 and current capacity of 816, and Mueller currently having an enrollment of 877 and a current capacity of 991.

SUHSD operates junior and senior high schools and ancillary programs. There are 18 SUHSD-operated schools in the city. SUHSD, the largest secondary school system in California, serves approximately 36,000 students in junior and senior high schools combined and approximately 34,000 adult learners in south San Diego County, including Chula Vista. SUHSD has identified the need for one additional high school site in the west and expanded facilities of existing high schools and middle schools.

In addition to traditional middle school and high school curriculum, adult education classes are available at over 70 locations throughout South County. These classes include U.S. citizenship and English as a Second Language (ESL) programs, vocational- and professional-skills development, as well as literacy and other general education courses that help students prepare for a high school diploma or General Education Development (GED) equivalency certificate. The District also provides parent education and personal development courses.

Chula Vista High School and Chula Vista Middle School serve the junior and senior high school student population of the UCSP area.

Provision of school facilities is the responsibility of the school district when additional demand warrants. School services are addressed in the City's Growth Management Threshold Standards and State Senate Bill 50. Senate Bill 50 was enacted to obtain support from the Building Industry Association for school bond issues and prohibits local governments from requiring extra fees or the establishment of a Mello Roos from new development to finance schools. The legislation provides that statutory fees are the exclusive means of considering as well as mitigating school impacts. This legislation does not just limit the mitigation that may be required, but also limits the scope of review and the findings to be adopted for school impacts. Once the statutory fee is imposed, the impact will be mitigated because of the provision that the statutory fees constitute full and complete mitigation (Government Code Section 65996). Therefore, payment of project development fees in compliance with statutory requirements reduce significant impacts to school districts below a level of significance.

### **5.11.3.2 Criteria for Determination of Significance**

Adoption of the UCSP would have a significant impact on educational facilities if it would:

- Criterion 1: Result in the inability of the public school system to provide adequate schools and fail to meet current student/teacher and facilities ratios established in the Chula Vista Elementary School District and Sweetwater Union High School District standards and thresholds.

### **5.11.3.3 Impacts**

- **Criterion 1: Adequate Level of Educational Facilities.**

The estimate of the number of students to be generated by the proposed project upon buildout was based on the current student generation factors used by each of the school districts. At buildout, the UCSP is expected to generate a net increase of approximately 3,877 students between elementary, middle school, and high school grades (Table 5.11-3).

It should be noted that potentially fewer students may result from UCSP buildout or interim conditions due to the nature of the allowable development under the UCSP. New residents of the intensified urban environment of mid- to high-rise mixed uses may likely be single or potentially childless young couples, or empty nesters. Therefore, the identified impacts may be overstated. Monitoring of these trends will be necessary to accurately plan for new student enrollment.

**TABLE 5.11-3  
STUDENT GENERATION RATES FOR THE PROPOSED PROJECT**

Grade	Generation Rate	Dwelling Units		Total Students Generated
		SF	MF	
K-8	MF = 0.35	--	7,100	2,485
9-12	MF = 0.196	--	7,100	1,392
Total Students Generated				3,877

SOURCE: Chula Vista Elementary School District; Sweetwater Union High School District 2004.

SF = Single-family; MF=Multi-family

The land uses proposed for the UCSP would result in increased population and demand for schools would continue to increase as the population of the city increases. Increasing the number of elementary school students would have a significant impact on existing elementary schools since they are already at or near capacity. Using every available classroom seat, the new development would require at least 59 additional elementary school classrooms (Fahle, written communication, 03/22/06). Increasing the number of middle and high school students would not be significant as the SUHSD has identified the need for one additional high school site in the west and expanded facilities of existing high schools and middle schools which would be adequate to meet the needs of the proposed project.

The CVESD does not have current plans for expansion at the UCSP school sites. Nor do they have current plans for new school construction in the western Chula Vista area. However, the school district is aware that additional demands may be placed on their school facilities by the addition of new residential developments, and is in the process of identifying properties that can be purchased as school sites.

GPU policies PFS 9.1 through PFS 9.5 address issues related to school facilities in the Urban Core, including coordination with local school districts to identify needs, school sites, sources of funding for school expansion, new approaches to accommodate enrollment, and review of land use issues requiring discretionary approval to provide adequate school facilities.

In conformance with the goals of the GPU, the UCSP addresses improvements to school facilities in relation to projected buildout of the UCSP over the 25-year planning horizon (Chapters IX and X). Through the Growth Management Oversight Commission and Capital Improvement Program process, the City will schedule and monitor public educational services improvements in coordination with the school districts. School mitigation fees will provide capital funding for needed facilities.

#### **5.11.3.4 Summary of Significance Prior to Mitigation**

The land uses proposed for the UCSP would result in a significant impact to schools unless construction of facilities coincide with student generation and associated service demands.

### **5.11.3.5 Mitigation Measures**

Provision of school facilities is the responsibility of the school district when additional demand warrants. Senate Bill 50 and Government Code Section 65996, as described above, provides that the statutory fees are the exclusive means of considering as well as mitigating for school impacts. It does not just limit the mitigation that may be required, but also limits the scope of review and the findings to be adopted for school impacts. Once the statutory fee is imposed, the impact will be mitigated because of the provision that the statutory fees constitute full and complete mitigation [Government Code §65995(b)].

Therefore, the following measure would reduce the impact to schools to below a level of significance:

#### **Mitigation Measure**

- 5.11.3-1 Prior to approval, subsequent development projects in the UCSP shall demonstrate that significant impacts to public educational services resulting from the individual project have been addressed. As a condition of project approval, individual developers shall pay the statutory school impact fees at the rate in effect at the time building permits are issued.

### **5.11.3.6 Summary of Significance After Mitigation**

With implementation of the above mitigation measure, project impacts to educational facilities and services would be less than significant for the proposed project.

## **5.11.4 Library Service**

### **5.11.4.1 Existing Conditions**

There are currently three full-service libraries in the City of Chula Vista: the Civic Center Branch, the South Chula Vista Branch, and the EastLake Branch. The three facilities comprise a total of 102,000 square feet of library space, including 14,000 square feet of administrative facility space. Based on estimates generated in the GPU, the total library square footage required to meet City library service standards equals 103,944. This represents a current shortfall of approximately 1,944 square feet of library facilities based on The City currently does not meet the 3.0 books/capita criteria established by the Public Facilities Element of the GPU.

In addition to the three full service libraries, the Chula Vista Heritage Museum is part of the Chula Vista Public Library System and a Chapter of the Friends of the Library. The Library Facilities Master Plan calls for the construction of a 30,000 square foot full-service library in Rancho del Rey by fall 2007, and construction has recently commenced.

The Civic Center Branch Library, located in the UCSP area, is 27 years old and considered the city's main library. The 41,000 square feet of library space is 54 percent of the existing library space. The library is crowded and frequently public passageways are congested. It should be noted that approximately 14,000 square feet at the Civic Center Library is used to house non-public service, system-wide administrative and support functions. The library has reached its capacity with regard to materials.

The Chula Vista Heritage Museum, located at 360 Third Avenue, is also in the UCSP area. Although not formally counted as part of the library system, the Civic Center Branch oversees the operation of this approximately 500-square-foot museum. The mission of the museum is to locate, collect, display, preserve, and record materials of local historic interest to the South San Diego Bay communities. The museum collection has expanded beyond the current available square footage and uses the Civic Center Branch basement to store and process photos and memorabilia.

#### **5.11.4.2 Criteria for Determination of Significance**

Adoption of the UCSP would have a significant impact on library services and facilities if it would:

- **Criterion 1:** Result in the inability of the City to provide an adequate level of library services and facilities in accordance with adopted City standards and thresholds as follows:

500 square feet of library facilities per 1,000 population for new development.

3.0 books per person for new development.

#### **5.11.4.3 Impacts**

- **Criterion 1: Adequate Level of Library Services and Facilities.**

Implementation of the UCSP may potentially result in significant impacts to library services in the UCSP Subdistricts Area and citywide if City plans for library capacity development are not realized. Existing library service conditions in the City are inadequate and not in compliance with City standards. Additional library capacity is planned by 2007 however, through construction of the 30,000 square foot Rancho Del Rey Library. In the absence of this or other new library construction, any additional demand on library services would comprise a significant impact. Buildout of the UCSP may require additional library space in order to meet and maintain the City criteria of 500 square feet per 1,000 population for new development. Based on the expected net increase in population of 18,318 with buildout of the UCSP, increased demand on existing library services would amount to approximately 9,159 square feet of library facilities and 54,954 books



As described in the library facilities existing conditions section, the City of Chula Vista library system is currently operating at a deficit of 1,944 square feet of library space and with an inadequate number of books per person citywide. To ameliorate these conditions, the Chula Vista Library Facilities Master Plan calls for the construction of an additional 30,000 square feet of library space by 2007 in the form of the Rancho Del Rey Library. This additional library capacity is sufficient to serve the current deficit as well as the increased demand for 8,946 square feet of library space resulting from implementation of the UCSP.

The UCSP addresses improvements to library facilities in relation to buildout of the UCSP over the next 25 years. Through the Growth Management Oversight Commission, Capital Improvement Program process, and long-term implementation of facilities (UCSP, Chapter X), the City will schedule, evaluate and monitor public library services improvements to coordinate timing of new facilities with new development. Public Facilities Development Impact Fee programs will provide capital funding for needed facilities.

While there is currently insufficient library space in the City to meet the 500 square feet per 1,000 population standard, new development will be required to adhere to the City's threshold standards policy requiring 500 sq. ft. per 1000 population

#### **5.11.4.4 Summary of Significance Prior to Mitigation**

A significant impact would result from the development of the UCSP if construction of new library facilities and provision of additional documents does not coincide with project implementation and associated population growth.

#### **5.11.4.5 Mitigation Measures**

The following measure will mitigate library impacts resulting from the adoption of the UCSP to below a level of significance.

##### **Mitigation Measure**

- 5.11.4-1 Prior to approval, subsequent individual development projects in the UCSP shall demonstrate that significant impacts to the provision of library services resulting from individual projects have been addressed. As a condition of project approval, individual developers shall pay the public facilities development impact fees at the rate in effect at the time building permits are issued.

#### **5.11.4.6 Summary of Significance After Mitigation**

Implementation of mitigation measure 5.11.4-1 would reduce project impacts to library facilities and services below a level of significance for the proposed project.

## 5.11.5 Parks and Recreation

### 5.11.5.1 Existing Conditions

Citywide, Chula Vista currently has 42 community parks, neighborhood parks, urban parks, and mini-parks. In 2005, Chula Vista provided approximately 1.95 acres of parkland per 1,000 residents as shown in Table 5.11-4 below. For the Subdistricts Area, this number is substantially less, with 0.75 acres of parkland per 1,000 residents.

In addition to the park acreage shown in Table 5.11-4, the City of Chula Vista contains over 9,433 acres of regional parks within its planning area. These incorporate substantial portions of the Sweetwater and Otay River valleys, as well as the Upper and Lower Otay Reservoirs, and make up a significant portion of the Chula Vista Greenbelt.

**TABLE 5.11-4  
CITY PARK ACREAGE PER POPULATION (YEAR 2005<sup>1</sup>)**

Planning Area	Park Acres	Population	Park Acres/1,000 Population
Bayfront	26.77	0	-
Northwest <sup>2</sup>	42.72	56,931	0.75
Southwest	57.92	53,562	1.08
East	279.95	98,707	2.84
<b>TOTAL</b>	<b>407.36</b>	<b>209,200</b>	<b>1.95</b>

<sup>1</sup>Acreages reflect corrections to 2000 census-based results by City of Chula Vista, Landscape Architecture Division.

<sup>2</sup>The Northwest Planning Area contains the UCSP Subdistricts area and surrounding areas in an area north of Lower Otay River, south of Sweetwater River, east of San Diego Bay, west of I-805.

In addition to parks, Chula Vista also has golf courses: one public and four private. However, none of them occur within the Subdistricts Area. The city currently owns one golf course in the City, leased to and managed by American Golf Corporation. Four other privately owned courses occur in the east, suburban areas of the City.

Currently, there are three neighborhood parks in the UCSP Subdistricts Area: Chula Vista Memorial Park, Friendship Park, and Norman Park, located in the northeast portion of the Subdistricts area in the vicinity of City Hall and the Police headquarters. Together these parks total approximately 13.32 acres and have a variety of amenities including open green space, play equipment, and picnic areas. This area also has the recreation complex, Parkway Gymnasium, Parkway Center, Parkway Pool, and Norman Park Senior Center.

New development in the City of Chula Vista is required to provide public parkland, improved to City standards and dedicated to the City or the payment of a fee in lieu thereof. Chula Vista Municipal Code 3.50 addresses funding and construction of recreation centers through collection of recreation facility development impact fees. In addition, parkland dedication requirements are specified in Section 17.10.040 of the Chula Vista Municipal Code which states that “the amount of parkland dedication required, in accordance with CVMC

17.10.010 through 17.10.110, is based on a standard of three acres per 1,000 people.” The area to be dedicated shall be as follows:

- Single-family dwelling units, including single-family detached homes and detached condominiums, 3.52 persons per dwelling unit, 460 square feet per unit, or one acre per 95 units;
- Multiple-family dwelling units, including attached condominiums, townhouses, duplexes, triplexes and apartments, 2.61 persons per dwelling unit, 341 square feet per unit, or one acre per 128 units;
- Mobilehomes, 1.64 persons per dwelling unit, 214 square feet per unit, or one acre per 203 units;
- Residential and transient motels/hotels, 1.50 persons per dwelling unit, 196 square feet per unit, or one acre per 222 units.

While the above standards are currently adopted, an update of this standard is being evaluated as part of the Growth Management Oversight Commission’s reassessment of Quality of Life thresholds for the areas west of I-805.

### **5.11.5.2 Criteria for Determination of Significance**

Adoption of the UCSP would have a significant impact on park and recreation services if it would:

- Criterion 1: Result in the inability of the City to provide an adequate level of park and recreation service and facilities in accordance with the adopted standard of three acres per 1,000 people; or as modified by the Growth Management Ordinance.

### **5.11.5.3 Impacts**

- **Criterion 1: Adequate Level of Park and Recreation Service and Facilities.**

The Chula Vista Parks and Recreation Master Plan, adopted 2002, states that at buildout of the GPU, with implementation of existing goals and policies, the city will have over 700 acres of parkland available for recreational use to meet the needs of the community. The system is planned to be comprised of a minimum of nine Community Parks, 46 Neighborhood Parks, and several Regional Parks.

The adopted Parks and Recreation Master Plan includes a demand analysis for parks and recreation facilities, which concludes that demand for active recreational facilities currently exceed available supply for areas west of I-805. Regulatory limitations on the ability of the City to exact parkland and improvements may continue to create challenges in providing

available parkland. The City of Chula Vista is currently preparing an update to the Parks and Recreation Needs Assessment (PRNA). The information gathered from the updated PRNA will be used in the upcoming "Parks and Recreation Master Plan Update and the Western Chula Vista Parks Implementation Plan.

City local park requirements include a variety of park types such as community parks and neighborhood parks. As identified in the Parks and Recreation Master Plan, neighborhood parks are generally located within walking distance (approximately one-half to three-quarter mile) of residents. Community park sites serve more than one neighborhood and area distributed throughout the City's park system.

New development in the City of Chula Vista is required to provide public parkland, improved to City standards and dedicated to the City. Parkland dedication requirements are specified in Section 17.10.040 of the Chula Vista Municipal Code as identified above in the Existing Conditions discussion. The Parkland Dedication Ordinance requires three acres of neighborhood and community parks per 1,000 residents for all new development. Buildout of the entire UCSP area could result in an estimated net increase population of 18,318. Therefore, applying the 3 acres per 1,000 resident parkland requirement full buildout of the UCSP would be required to provide up to approximately 55 acres of new parkland. This additional parkland would be required incrementally and commensurate with new development.

The UCSP proposes meeting the parkland requirement by establishing an urban system of parks, plazas, paseos, pedestrian promenades, and bike boulevards (Figure 5.11-1). These improvements include improving and expanding existing park space to optimize use of the space and facilities.

The UCSP identifies potential park sites which will be located as specified in the updated parks master plan and will contain facilities required by the plan. The following are the recommended park facilities that should be developed in the UCSP area:

1. One park of approximately 12-15 acres, or several parks with an aggregated total of approximately 12-15 acres, should be provided west of Broadway between H Street and E Street. This facility should include formal areas for sports, informal multi-use field space, picnic areas, children's play equipment, walking trails and paths, a fountain, plazas, benches, shade trees, ornamental landscaped areas, i.e. a rose garden, community garden, restroom facility, park office and storage, and urban features such as a pond or other water feature. Program elements are to be determined by the proposed Park Master Plan update process.
2. A community park between 15-20 acres should be provided in the Northwest Planning Area in the area of "Lower Sweetwater". This community park is intended to serve the residents of the urban core. This facility should include all elements identified in the proposed Parks and Recreation Master Plan update.

Map Source: City of Chula Vista, UCSP, April, 2006

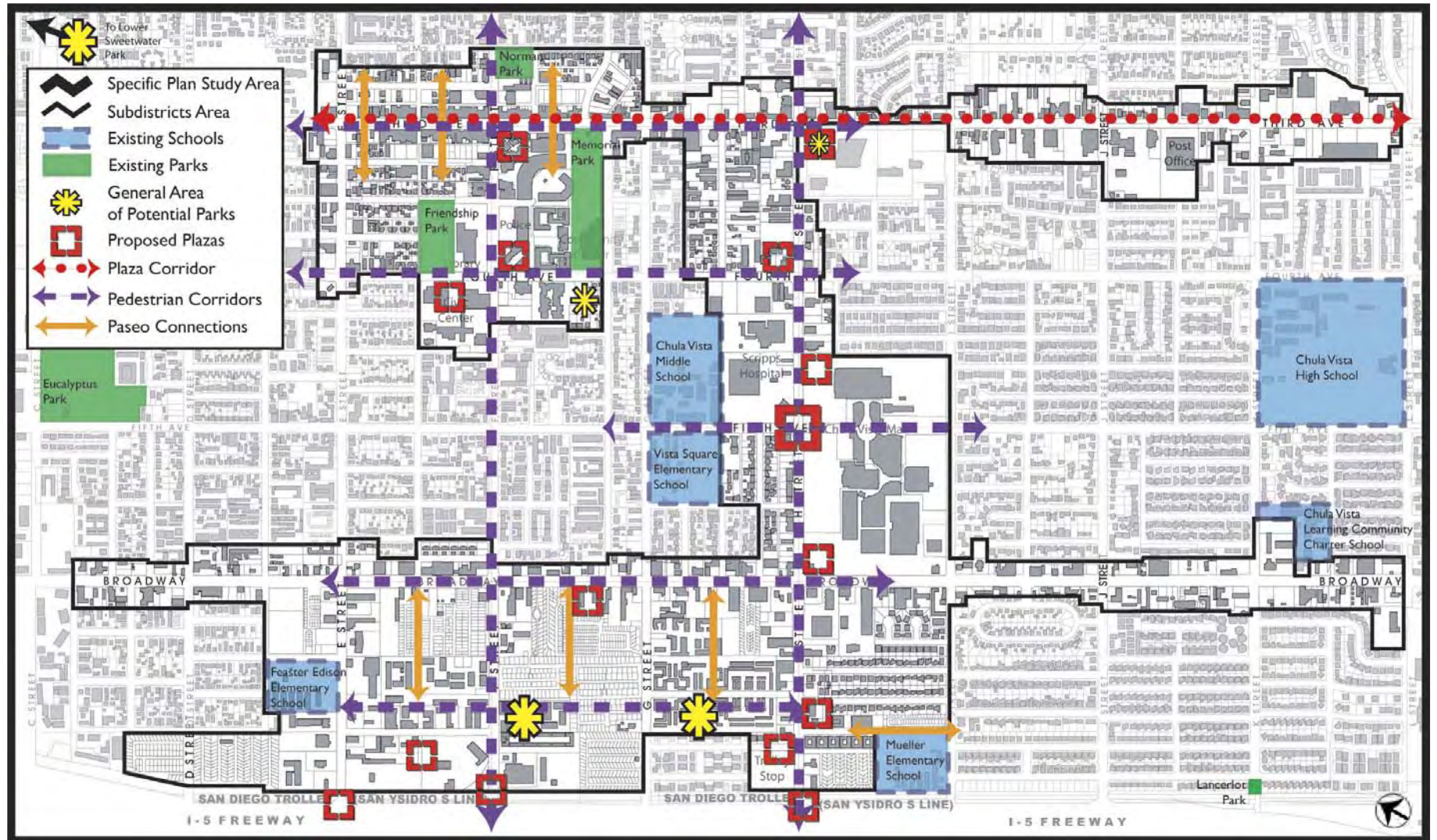


FIGURE 5.11-1  
Parks, Plazas, Paseos and Public Spaces

3. Existing City parks should be evaluated to assess optimum use of the facilities. Potential future park components will be identified in the proposed Parks and Recreation Master Plan update.
4. Memorial Park should be expanded by between 3-5 acres and upgraded such that the park is made more usable and attractive to area residents. A small plaza along the Third Avenue frontage should be considered in the redesign. Connections and relationship to the expanded civic center should also be considered. Potential future park components would be identified in the proposed Parks and Recreation Master Plan update.

Additionally, the UCSP identifies numerous plaza improvement projects with various amenities which will be developed in conjunction with new development. The following are generalized vicinities of plaza locations that should be developed in the Specific Plan area:

1. The southwest corner of Third Avenue and F Street.
2. Adjacent to the Third Avenue street frontage at existing Memorial Park.
3. The southwest corner of Third Avenue and H Street adjacent to the County Courthouse (enhance use of existing urban plaza).
4. The south side of H Street across from Scripps Hospital.
5. The intersection of H Street and Fifth Avenue.
6. The southeast corner of H Street and Broadway.
7. The south side of H Street at the intersection of Woodlawn Avenue.
8. The west side of Broadway between E Street and H Street.
9. The overcrossings of I-5 at E Street, F Street, and H Street. The plaza at the F Street overcrossing should be more extensive than plazas at the E Street and H Street overcrossings, as F Street provides a significant connection to the Bayfront for pedestrians and bicyclists.
10. The three transit focus areas: on H Street between Third Avenue and Fourth Avenue; H Street Trolley; E Street Trolley.

#### **5.11.5.4 Summary of Significance Prior to Mitigation**

Implementation of the proposed project would generate increased demand for parks and recreation facilities. The Chula Vista Municipal Code, Section 17.10 (the Park Development Ordinance – PDO) applies a standard of 3 acres of parkland for every 1,000 people to all new development. A significant impact could result if dedication of parkland and



construction of new facilities does not coincide with project implementation and project population growth. Full buildout of the UCSP would be required to provide up to approximately 55 acres of new parkland. This additional parkland would be required incrementally and commensurate with new development.

### **5.11.5.5 Mitigation Measures**

The following measure will mitigate impacts to the provision of park and recreation services and facilities resulting from the adoption of the UCSP to below a level of significance.

#### **Mitigation Measure**

5.11.5-1 Prior to approval of an Urban Core Development Permit, each subsequent project shall establish to the satisfaction of the Community Development Director that the project meets the City's parkland dedication requirement. As a condition of project approval, individual developers shall provide required parkland and facilities on-site, if possible and consistent with potential site locations identified in the UCSP and Parks Master Plan; or pay the applicable parkland acquisition and parkland development fee and recreation facility development impact fees at the rate in effect at the time building permits are issued

### **5.11.5.6 Summary of Significance After Mitigation**

Implementation of mitigation measure 5.11.5-1 would reduce the impacts to parks and recreation facilities from development of the proposed project to below a level of significance.